THE AUTOMOBILE

VOL. XV. NEW YORK—THURSDAY, OCTOBER 11, 1906—CHICAGO No. 15

HOW A GREAT RACE WAS RUN AND WON

Wagner Assumed the Lead and Fought Off Lancia, Duray, Clement and Jenatzy, All of Whom Were Dangerous at Times

By A. G. BATCHELDER.

LANCIA, the dashing, nonchalant son of Italy, had made a tempestuous, noisy swirl past the cheering grandstand, waving a token of recognition to the excited throng that believed him the winner of the Cup.

Wagner, who, despite his name, hailed from France, had last been heard from at Bull's Head, nearly a score of miles away and stranded with a damaged tire. Six minutes and sixteen seconds was the advantage which he possessed at the completion of the ninth round.

Strangely meager information came over the telephone line that entwined the 29.71 miles of road with its eleven turns, several of which tried the skill of the most experienced. Slowly the minutes wore away, and gradually the impression grew that Italy, not France, had triumphed in the great American Automobile Derby.

A bugle's blast cut through the keen October air; far up the turnpike an uneven chain of flagmen began to flaunt their red pieces of cloth. "Car coming!" echoed down the oil-stained road. 'Twas Wagner, the missing, and in an instant the multitude knew that the victor was seated at the helm of that squat, homely thing on wheels that hurtled onward with startling speed, prow-pointed, and giving it the appearance of a terrifying projectile that carried in its course death and disaster to all that confronted its marvelous flight.

Fearful that his rival had reached the goal in advance, the bearer of the tricolor drove his throbbing monster as one might expect a madman to do were a demented being at the wheel. Nothing like the coming of Wagner had been seen on that eventful Saturday morning, prolific of incident and accident, for the Darracq pilot knew not that he had three minutes and more to spare. Like the transit of a meteor was the fugitive passing of that low-built, sputtering fiend, which jumped by and at the humans who had overspread the road. They ran in all directions and nothing short of a miracle saved their lives. But Wagner held his brute in check and soon had it in leash beyond power to do harm to the fools that had invaded its course.

And from the break of day, though the motor craft were supposed to have the right of way, those who guided them around the circuit had been obliged to plow their route through living lanes of wildly curious humanity. One more careless or luckless than the rest had gotten in the way of Shepard's swift-moving racer and had paid the penalty with his life; another, a boy, had placed himself in the path of Tracy's skidding car; Weillschott had swerved into a bunch with fortunate escapes for several. Little Johnny Brooks will remember all his days his narrow squeeze underneath that muttering Fiat, for it passed over him completely. Carried into a nearby house, Johnny soon recovered from his fright and shortly reappeared on the scene as an interested observer of a fistic contention between a deputy sheriff and a colored man who insisted upon taking chances with the flying autos that bounded up the Manhasset hills.

That there were no more casualties than those enumerated was a source of surprise and congratulation to the Cup Commission, which saw with exasperation its wire fences laid low, its special officers laughed at, and all its efforts to guard the course nullified by the eager crowds which knew no law other than the insane gratification to surge out on the road and feel the wind of the racers as they perilously tore around the course with its fringe of humanity.

Of course there will be no race on Long Island next year under the same conditions; in fact, there will be no race at all unless it is over privately owned road, of which there is a possibility. The directors of the American Automobile Association have appointed a special committee to look into several projects that have been born since it became apparent that the national body could ill afford to have its Racing Board identified with any more road racing under the circumstances that existed October 6, even if the supervisors of any county could be prevailed upon to give the necessary permission.

CHAIRMAN WHO CARRIED THE BURDEN.

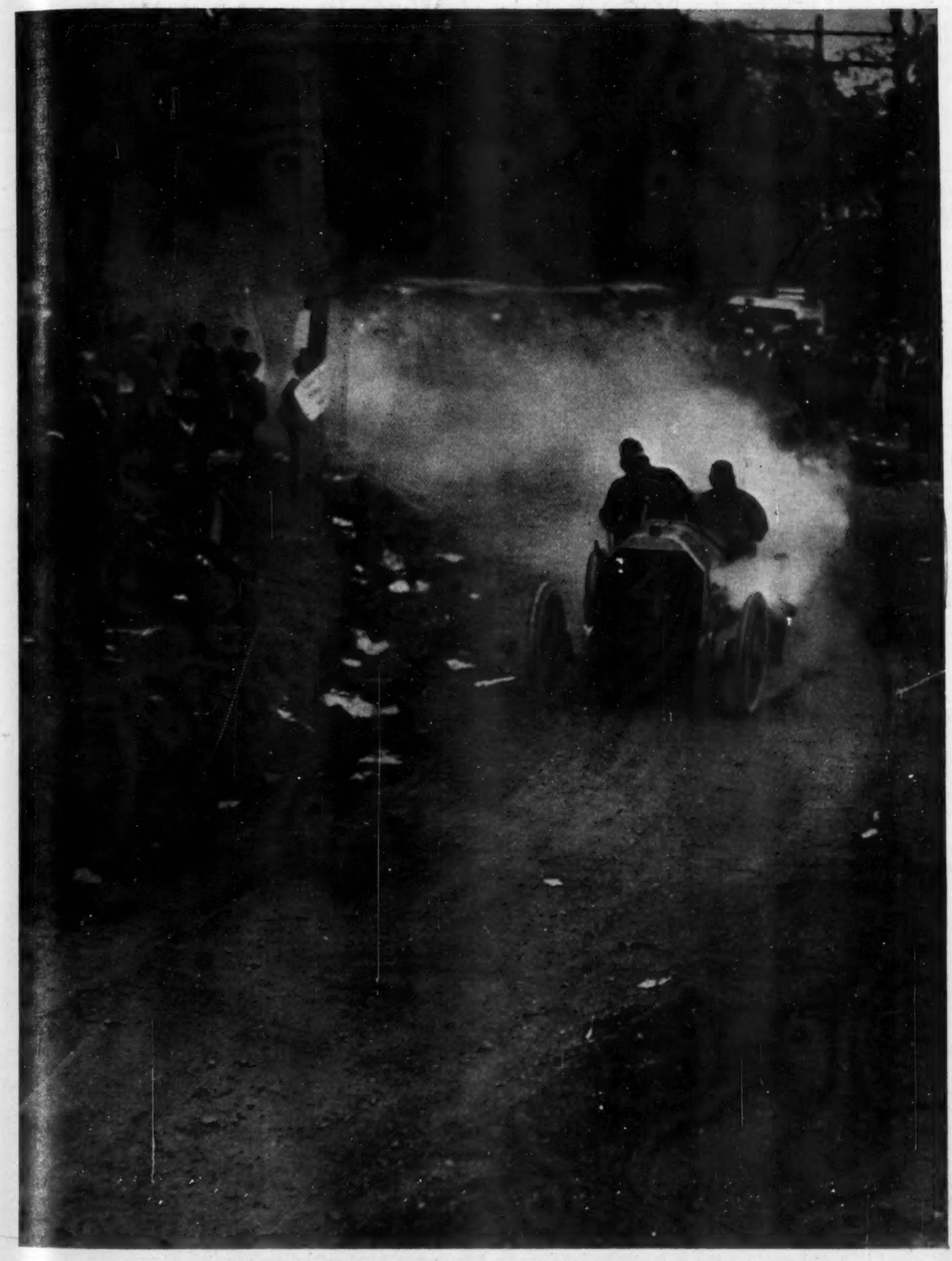
But the struggle of Saturday was a grand one, though it must be said that the victor had the lead from the outset and never relinquished the ascendency throughout the ten circuits of the tortuous course, which Albert Clement characterized as annoying rather than dangerous. Lancia fought courageously, tenaciously, but the other seemed to have something on him in point of mobility with a short wheelbased machine. Then there came forth a story that the Italian had misunderstood the information that was given to him about his time in the ninth round; but at this the Wagnerites smile and make no other comment.

Duray, the Ardennes winner, did not follow in the footsteps of the two previous winners of the Belgium race. In two circuits he pursued the flying Wagner, and then alternated between third and fourth, ending at the heels of Lancia, and awfully close, too.

Clement had one particularly poor round because of tire difficulties, then he settled down to consistent running, but the others had accumulated too much of a lead to be overhauled.

At one stage of the proceedings it looked not unlikely that the old warhorse, Jenatzy, would be a factor in the winning of the Cup. With the vim and rush that characterized his historic Irish win he went at his task, hung to Wagner on the opening ground, was in third place on the eighth whirl, and then lost his chance by a defective tire valve in the ninth. Naturally the good-natured Belgian driving the German machine owned by an American was a sadly disappointed man.

Tracy held the center of the stage on the fifth round, which

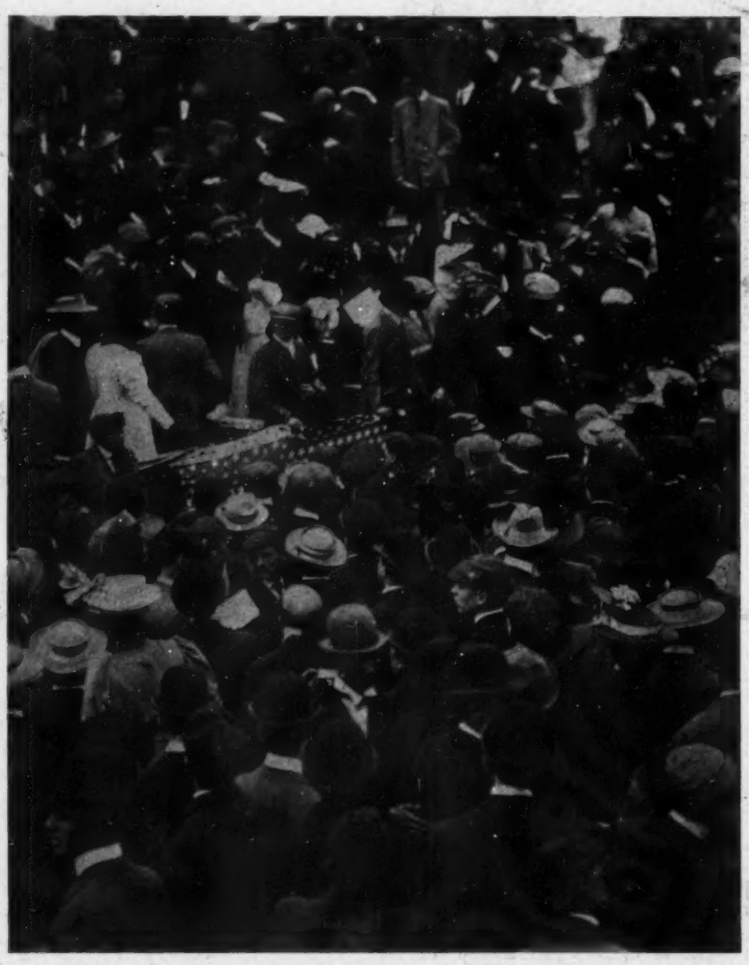


LANCIA, WHO GAVE WAGNER THE HARDEST FIGHT, ROUNDING AT HIGH SPEED THE HAIRPIN TURN

he traveled in 26:21, a speed of about 67 1-2 miles an hour. It is estimated that during this circuit the Locomobile moved in excess of a hundred miles an hour. After his first round Tracy stopped at the grandstand and complained of the crowds that overran the course, and then it was that Referee Vanderbilt personally warned the spectators that the race would be called if they did not keep off the road. Tracy's tire troubles were not few, and then to cap the climax he had to run into the boy at East Norwich. Altogether the leading American candidate had an unfortunate inning.

Le Blon persisted to the end, despite a bad beginning, that contained several tire punctures. A broken fan wound up the career of the Frayer-Miller in the fifth round, but the Christie and Haynes were still running when the race was declared at an end.

Since France officially had nothing to do with the race thru its automobile club, it is assured that the next contention for the Vanderbilt Cup will not take place in that country. With Italy second in the summary, it may mean that the next contest will be under Italian auspices. Then, again, Long Island may see the fourth running for the "Cup of Cups."



DONOR VANDERBILT AND CHAIRMAN THOMPSON EXCHANGE CONGRATULATIONS

THE WINNER

Wagner, the winner, is no stranger in America, as he will be remembered as the teammate of Hemery in the last Vanderbilt Cup race, which was won by the latter with a Darracq car, and his pleasing and amiable disposition made friends for him with all with whom he came in contact. After driving three rounds in that contest at a record clip—exceeding the time made by Hemery—he was forced to retire, owing to an accident.

Abroad he is one of the best known and popular drivers of fast cars and is accredited with a larger string of victories in road and speed contests than attained by any other individual.

Owing to Wagner's youth the Darracq company at first entrusted him with only their light- and middle-weight racers, with the result that during the first few years of the present decade he broke all existing records in his class, the most notable being the winning of the 298 kilometer race for light cars, run over the historic Belgium Circuit des Ardennes course, June 23, 1903, covering the distance in 3 hours 55 minutes 22 1-2 seconds, or 32 minutes ahead of his nearest competitor. In the same fall he also won the French Château-Thiery and Gaillon races, which were run up a steady incline, with many rocks and sharp turns that taxed the nerves and skill of the drivers to the utmost.

During the greater part of the year 1904 Wagner spent his time in the French army, but by securing special furloughs he participated in several speed contests with such remarkable success that the Darracq company selected him to drive one of their powerful heavy-weight cars for 1905 in the Vanderbilt race. Wagner's record for 1905 was one continuous series of successes. That his promotion to driving big cars was a shrewd move on the part of the Darracq company is borne out by the fact that he won first place in the speed contests held in 1905 at Ostend, Doulens, Scheveningen and Liege with a heavy-weight car. In the same year he also drove a light-weight car in two races and won both events for that class, namely, the Circuit des Ardennes and at the Liege meeting. At the Ostend meeting he won the 10-kilometer event in 4:08, or at the rate of 90.44 miles an hour, over a common dirt road.

It was, however, in the elimination trials over the French Auvergne course in June, 1905, that Wagner's name was made known throughout the world as one of the most clever and daring drivers in long-road contests. With an 80-horsepower Darracq he was well in the lead up to 500 kilometers (310 miles), and when this distance had been attained he was as much as 35 minutes ahead of Thery, the eventual winner of the race. Unfortunately for the dashing young Darracq driver, he lost nearly an hour's time during the last 50 kilometers (31 miles) of the contest repairing punctures due to broken glass and sharp stones having cut his tires. Notwithstanding this fact, he finished fourth, only thirteen minutes after the winner. In retrospect it is now easy to see that had he not encountered any tire troubles he would have won by the largest margin ever attained in a great road race.

In the classic Circuit des Ardennes road race, August 7, 1905, he created a new world's record for 100 kilometers (62.14 miles), traveling the distance in 55:18, an average speed of 67.3 miles an hour, breaking the former record of 57:51. No car of any other make up to that time had ever attained such a rate of speed over a common country road.

As if to emphasize his great victory of last year, he entered the 1906 Ardennes race, held August 13, with the pick of the powerful European cars pitted against his new 100-horsepower Darracq, and won the 100-kilometer race in handy fashion, covering the distance this time in 52:49, an average of 113 1-2 kilometers, or 72 miles an hour, the fastest time ever made in any European road race. Wagner also made the fastest round of the circuit.

Wagner is a sturdy-built Frenchman with wonderful self-control, due in part to the severe military training of his early youth. He knows no English, and anyone desirous of engaging him in conversation must speak French or through an interpreter. His muscles, like his nerves, are of steel, and he controls the great machine he drives with perfect ease and self-confidence. Wagner has always been considered a veritable daredevil.

FASTEST LAPS IN THE RACE AND WHO MADE THEM.

No.	Machine	Driver	Time	Lap
9.	Locomobile	Tracy	26:21	Fifth
10.	Darracq	Wagner	27:22	Sixth
8.	F. I. A. T.	Nazarro	27:25 2/5	Ninth
18.	Lorraine-Dietrich	Duray	27:52	Tenth
3.	Mercedes	Jenatzy	28:05	Third
15.	Bayard-Clement	Clement	28:10	Seventh
4.	F. I. A. T.	Lancia	28:17	Fifth
1.	Thomas	LeBlon	30:07	Fourth
6.	Hotchkiss	Shepard	30:23	Sixth
7.	Mercedes	Luttgen	30:41 2/5	Fourth
12.	Itala	Cagno	30:59	Sixth
2.	Panhard	Heath	33:29	Fifth
5.	Frayer-Miller	Lawwell	33:34	First
17.	Christie	Christie	33:38 2/5	Second
19.	Itala	Fabry	33:49 2/5	Fourth
14.	Haynes	Haynes	34:14 1/5	Third

RELATIVE POSITIONS IN RACE AT END OF EACH LAP.

No.	Machine	1st	2d	3d	4th	5th	6th	7th	8th	9th	10th
10.	Darracq	1	1	1	1	1	1	1	1	1	1
4.	F. I. A. T.	6	3	3	2	2	2	2	2	2	2
18.	Lor.-Dietrich	3	2	2	4	3	3	2	4	3	3
15.	Bayard-Clement.	5	6	5	5	5	5	5	5	4	4
3.	Mercedes	2	4	4	3	4	4	4	3	5	5
8.	F. I. A. T.	7	7	9	8	7	7	6	6	6	Race called
12.	Itala	11	10	8	7	9	8	7	7	7	called
1.	Thomas	16	15	14	12	12	11	8	8	8	called
2.	Panhard	13	13	12	10	11	9	9	9	Race called	
9.	Locomobile	12	12	15	14	10	10	10	10	Race called	
7.	Mercedes	10	8	10	9	8	13	12	11	Race called	
19.	Itala	14	11	11	13	13	12	11	Race called		
17.	Christie	9	9	7	11	15	14	13	Race called		
14.	Haynes	15	14	13	15	14	15	14	Race called		
6.	Hotchkiss	4	5	6	6	6	6	Disabled			
5.	Frayer-Miller	8	16	16	16	Disabled					

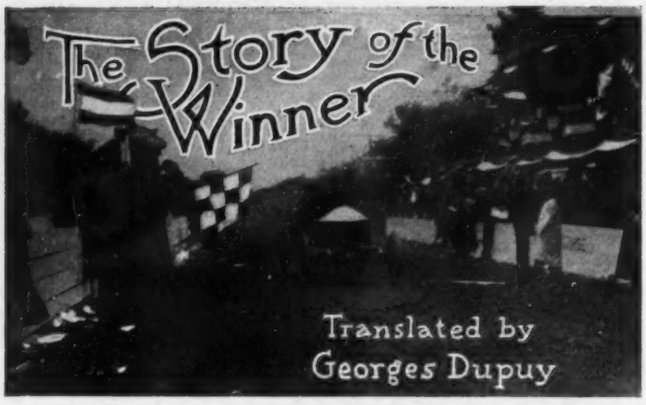
TABULAR STORY OF THE THIRD ANNUAL RACE FOR THE VANDERBILT CUP, OCT. 6, 1906.

No.	Machine	H.P.	Driver	1st lap	2d lap	3d lap	4th lap	5th lap	6th lap	7th lap	8th lap	9th lap	10th lap
10.	Darracq	110.	Wagner	28:26	56:22 2/5	1:24:30 3/5	1:52:21	2:24:30	2:51:52	3:19:33	3:50:18	4:18:12	4:50:10
					27:56 2/5	28:17 1/5	27:41 2/5	32:09	27:22	27:41	30:45	27:54	31:58
4.	F. I. A. T.	120.	Lancia	30:27	1:00:01	1:28:55 3/5	1:57:13	2:25:20	2:58:22	3:26:43	3:55:22	4:24:28 2/5	4:53:28
					29:34	28:54 3/5	28:17 2/5	28:17	33:02	28:21	28:39	29:06 2/5	28:59 3/5
18.	Lorraine-Dietrich.	120.	Duray	30:18	59:10 3/5	1:27:29 4/5	2:00:27	2:28:53 2/5	2:58:39	3:26:43	3:57:52	4:25:52	4:53:44
					28:52 3/5	28:10 1/5	32:57 1/5	28:26 2/5	29:45 3/5	28:04	31:09	28:00	27:52
15.	Bayard-Clement.	100.	Clement	31:21	1:04:52	1:33:36 3/5	2:01:54	2:38:26	3:07:48	3:35:58	4:04:16	4:33:48	5:01:50 4/5
					33:31	28:44 3/5	28:17 2/5	36:32	29:22	28:10	28:18	29:32	28:11 4/5
3.	Mercedes	120.	Jenatzy	30:02	1:00:18	1:29:27	1:57:32	2:32:06 1/5	3:00:45	3:29:07	3:57:24	4:35:08 2/5	5:04:38
					30:16	29:09	28:05	34:34 1/5	28:38 4/5	28:22	28:17	37:44 2/5	29:29 3/5
8.	F. I. A. T.	120.	Nazarro	30:41	1:05:44 1/5	1:47:08	2:21:29	2:50:50	3:19:47	3:57:36	4:25:33	4:52:58 3/5	Race
					35:03 1/5	41:23 4/5	34:21	29:21	28:57	31:49	27:57	27:25 2/5	called
12.	Itala	120.	Cagno	36:17 3/5	1:11:37 3/5	1:44:05	2:17:18 3/5	2:55:38	3:26:37	3:58:46	4:30:30	5:06:28 4/5	Race
					35:20	32:27 2/5	33:13 3/5	38:19 2/5	30:59	32:09	31:44	35:58 4/5	called
1.	Thomas	115.	LeBlon	57:32 3/5	1:29:15	2:00:02	2:30:09	3:00:42	3:30:20	4:10:16	4:41:05	5:12:26 2/5	Race
					31:42 2/5	30:47	30:07	30:33	29:38	30:56	30:49	31:21 2/5	called
2.	Panhard	120.	Heath	30:50	1:19:12 3/5	1:53:38	2:27:11	3:00:40	3:37:14	4:13:02 3/5	4:47:10 2/5	Race called	
					30:22 3/5	34:25 2/5	33:33	33:29	36:34	35:48 3/5	34:07 4/5		
9.	Locomobile	90.	Tracy	38:48	1:17:41	2:02:32	2:34:09	3:00:30	3:38:53 2/5	4:19:19	4:52:58 3/5	Race called	
					38:53	44:51	31:37	26:21	38:23 2/5	40:26	33:57 3/5		
7.	Mercedes	120.	Luttgen	34:32	1:06:46	1:50:02 3/5	2:30:44	2:54:48	3:45:00	4:22:36 3/5	4:55:51	Race called	
					32:14	32:14 3/5	30:41 2/5	34:04	50:12	37:36 3/5	33:14 2/5		
19.	Itala	120.	Fabry	41:28	1:16:49 2/5	1:53:06 2/5	2:31:11	3:05:00 2/5	3:42:13	4:20:57	Race called		
					35:21 2/5	36:57 2/5	38:04 3/5	33:49 2/5	37:12 3/5	38:44			
17.	Christie	50.	Christie	34:07 3/5	1:07:46 3/5	1:43:02	2:18:36	3:26:16	4:01:18	4:38:56	Race called		
					33:38 2/5	35:15 2/5	45:34	57:40	35:02	37:38			
14.	Haynes	60.	Haynes	45:18	1:19:53 4/5	1:54:08	2:38:35 3/5	3:14:34	4:02:05	4:41:28 4/5	Race called		
					34:35 4/5	34:14 1/5	44:27 3/5	35:58 2/5	47:31	39:23 4/5			
6.	Hotchkiss	120.	Shepard	32:26	1:04:03 4/5	1:34:58	2:05:21	2:39:14	3:09:37 3/5	Broke connecting rod			
					31:37 4/5	30:54 1/5	30:23	33:53	30:23 3/5				
5.	Frayer-Miller	110.	Lawwell	33:34	1:54:14 4/5	2:30:26 3/5	3:10:24	Retired with broken fan					
					1:20:40 4/5	36:11 4/5	39:57 2/5						
16.	F. I. A. T.	120.	Weilschott.	Broke steering gear at foot of Manhasset Hill, and went over the bank.									
11.	Mercedes	120.	Keene	Did not start owing to broken cylinder.									

Figures in first line indicate total elapsed time. Figures in second line indicate elapsed time for the lap.

TABLE SHOWING ROTATION OF PASSAGE AND SPEED FOR EACH LAP.

No.	Car	Driver	1st lap		2d lap		3d lap		4th lap		5th lap		6th lap		7th lap		8th lap		9th lap		10th lap		Miles per hour total elapsed time.
			Rotative Passage No.	Miles per hour for	Rotative Passage No.	Miles per hour for	Rotative Passage No.	Miles per hour for	Rotative Passage No.	Miles per hour for	Rotative Passage No.	Miles per hour for	Rotative Passage No.	Miles per hour for	Rotative Passage No.	Miles per hour for	Rotative Passage No.	Miles per hour for	Rotative Passage No.	Miles per hour for	Rotative Passage No.	Miles per hour for	
10.	Darracq	Wagner	3	62.63	19	63.80	33	62.99	47	64.35	60	55.43	73	65.11	86	64.40	99	57.96	109	63.90	125	55.77	61.43
4.	Fiat	Lancia	2	58.53	18	60.29	32	61.68	46	62.98	56	63.41	74	53.95	87	62.87	97	62.22	111	61.25	124	61.46	60.32
18.	Lorraine-Dietrich.	Duray	11	58.83	23	61.73	36	62.04	53	54.08	66	62.70	81	59.89	93	63.48	104	57.24	118	63.66	129	63.95	60.27
15.	Bayard-Clement.	Clement	9	56.86	24	53.24	38	62.02	52	62.97	69	48.80	82	60.77	95	63.35	108	62.99	119	60.48	131	63.37	59.02
3.	Mercedes	Jenatzy	1	59.35	17	58.96	30	61.14	44	63.55	61	51.56	76	62.22	88	62.85	100	63.01	114	47.23	128	60.44	58.01
8.	Fiat	Nazzaro	6	58.09	21	50.85	30	43.40	57	51.90	70	60.73	85	61.55	101	47.12	113	63.87	126	65.04	...	.. ..	54.75
12.	Itala	Cagno	10	50.50	26	49.06	41	54.96	55	53.69	77	46.52	89	57.51	102	55.44	117	56.19	132	49.56	...	.....	52.34
1.	Thomas	LeBlon	15	30 98	29	56.20	45	57.91	59	59.20	71	58.34	91	46.12	103	57.66	116	57.74	130	56.89	...	.....	51.35
2.	Panhard	Heath	8	44.75	25	45.28	40	51.79	54	53.13	75	53.23	90	48.51	105	50.00	120	52.23	...	.....	...	.....	49.65
9.	Locomobile	Tracy	12	45.93	28	45.86	51	30.74	63	56.38	78	67.66	94	46.44	110	44.09	123	62.21	...	.....	...	.....	49.52
7.	Mercedes	Luttgen	7	51.60	22	57.62	42	39.97	58	54.52	72	55.60	96	35.51	112	47.34	127	53.61	...	.....	...	.....	48.18
19.	Itala	Fabry	16	42.99	34	50.44	49	49.05	67	46.81	83	52.76	98	48.17	115	46.02	...	.....	...	.....	...	.....	47.82
17	Christie	Christie	13	52.26	27	52.97	43	50.58	64	39.12	92	32.00	107	50.99	122	47.36	...	.....	...	.....	...	.....	44.73
14.	Haynes	Haynes	14	39.35	31	51.52	48	52.07	68	40.11	84	49.55	106	37.50	121	45.26	...	.....	...	.....	...	.....	44.33
6.	Hotchkiss	Shepard	4	54.96	20	56.43	35	57.67	50	58.65	65	52.56	80	58.63	...	.....	...	.....	...	.....	...	.....	56 41
5.	Frayer-Miller	Lawwell	5	53.12	37	26.75	62	35.50	79	44.58	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	37.45
16.	Fiat	Weillschott.	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	.....



11.07 A. M. The sturdy racer in which Louis Wagner and Louis Vivet have been devouring Time and Space for five short hours has passed for the last time before the multitude packed in the grandstand like a fantastical vision. I knew his terrific momentum would take him, at least, to a quarter of a mile below the finish. The young Frenchman is always very cool and self-possessed, and does not want to use his brakes where there is no need of it. Then I happened to be posted at the very place he stopped. Ahead of the enormous, compact, wild crowd I jump at his side and shake both his hands. His fine legs are spread at ease on the long, low vehicle. Both his soles repose on the pedals with the delicacy used by a piano player. Men and machines are literally covered with grease and particles of oil emulsion from the road. Very calm amidst the tremendous roaring of the masses—above all because he does not hear a single sound of English—Wagner tranquilly stops his motor, lifts his goggles and mouth protector, both terribly soiled, and looks at me with his keen, brown eyes. A happy smile illuminates his face while I cry to him almost in his ear:

"Vive, Wagner! Vive La France!"

And we shake hands once again while my back, legs and arms are positively battered by a hundred fists and elbows "who want to talk to him, too."

"But," continues Wagner, "I, who profess to be, with Victor

"Georges, I am happy, very happy. I have just won the first place in the grandest race ever run in the world. 'Papa' Darracq will dance with joy once more, and also will all the boys, all the clever engineers, foremen and mechanics who have participated in building this beauty."

"The old Suresnes will be decked with flags, too!" shouts the mechanic, interrupting, "and my girl will be at the main gate of the factory when we are back, you bet!"

"But," continues Wagner, "I, who profess to be with Victor Hemery, one of the fearless among the fearless, was scared to death all the time. Tell them all it is a shame, a horrible thing, *C'est une honte!* They never will conceive in France, and nowhere else in the world but here, of such a crazy crowd, positively blocking the course fifty meters ahead of you all the time. We could not see the turns, but guess them. I was not absolutely sure when to commence strangling my gas or maneuvering my levers. Vivet, here, was still more afraid and would repeat all the time *'Ca y est, nous allons nous casser la geulo!'* (Now we are going to break our bones!) How is it possible that a man with the means, intelligence, kindness and sportsmanship possessed by Mr. Vanderbilt could not get a better service? Were there any killed?"

I tell him of the accidents of Shepard, Tracy and Weillschott.

"I wonder," says he, "how there were not a hundred killed. But let me get off this old seat; I'm a little stiff."

Both men jump off and somebody arrives with a bottle of champagne and a glass. The great driver smiles, wipes his mouth with the back of his hand, takes the glass handed by the kind sportsman, who has all sorts of trouble in filling it in front of that human sea, and Wagner raises it and says, before drinking, "Never mind; hurrah, three times hurrah, for America." "Indeed," he continues, "the chase was a hard one, but I knew I was a good minute faster per lap than Duray, Lancia, Jenatzy and Clement." While he is talking I put my hand on the angular radiator. The thing is hardly warm.

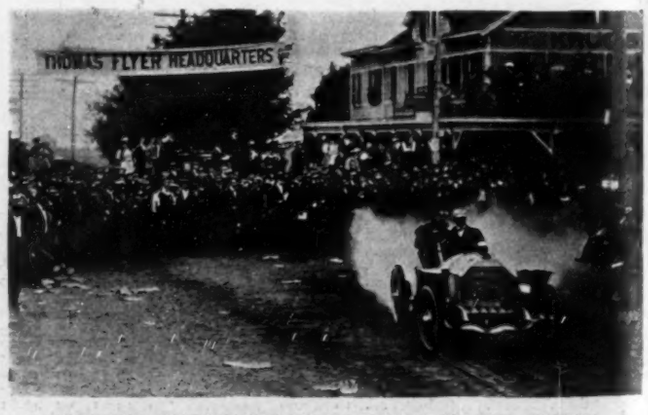
"You ask me what are my impressions of the race? Well, first of all, the course was not in bad shape. The rain that fell during the previous day had rendered it smooth and 'taking.' There was no skidding, and it was a good road for leather tires. My Michelin, on the other hand, held out beautifully, and all through the terrific speed (sometimes over ninety miles which I put on on the straight stretches) I had only to change four of my rims. You see, I am the only one in the bunch with wire wheels, but," he added, with his gentle smile, "they know how to make them over in Suresnes.

"The hottest pace I set was in the fifth and sixth laps, when I saw that Jenatzy and Lancia were still fast and regular, and only from 20 to 30 seconds slower than I. Thanks to Mr. McWilliams' clever initiative, there were private score boards established at several of the slowing points, telling me exactly what were my gait and position in the race.

"What about the machine, do you ask? I don't really know. I have nothing to say about it, but that she was working and going like a beautiful little chronometer. Don't think for a minute that Vivet or I was worrying about anything concerning motor, ignition, transmission, and the rest during the tremendous go. We knew her. She was built right. She was built by the first automobile makers in the world. That's all. Now you can say that the only turn where I changed speed was Krug's. I could control my cylinder revolutions so well only by admission that my throttling down 300 yards before the hairpin was early enough and sufficient to allow me to turn without skidding and regain (*on the foot*) as soon as I was out. Lubricating, water cooling, obedience of the magneto, were all there, and I am proud to say that at least 60 per cent. of the honors go to the machine.

"Yes, Lancia, Jenatzy, Clement and Duray are great drivers. Jenatzy in particular set a terrible pace right at the start. I presume he had many tire troubles, otherwise he should have been finishing right behind me. Lancia was not quite so fast as I expected he would be, but will see him again; also Duray and Albert Clement, who also had his share of troubles.

"I can't understand how Joe Tracy did not do better. I saw his machine before the race and think it is a most beautiful piece of mechanism. Is he finishing? But let me go now to the weighing-out and then to my camp, for I'm hungry as a pack of wolves. Yes, I'm delighted with the treatment I received from everybody. The Americans are great sportsmen in the full acceptation of the word and are bound to vanquish us sooner or later. *En avant!* crank the motor, Vivet; let's get away! *Au revoir.*"



REFEREE VANDERBILT MAKES A TOUR OF THE COURSE.

After Tracy stopped at the starting line and advised Mr. Vanderbilt of the way the course was being encroached upon by the crowds, the latter made a personal tour of the course for the purpose of enforcing the regulations.

HOW THEY BEGAN AND HOW THEY ENDED

By HARRY B. HAINES.

FRIDAY night was a wild one on Long Island. Thousands of people journeyed from New York and camped out along the course, getting in their places as early as 7 o'clock in the evening in order to be sure of a good position from which to see the great race. The people in the cars came prepared for their night of sleeplessness and had brought heavy robes and blankets. Farmers owning land along the course reaped a rich harvest, charging from $10 to $25 for the privilege of parking cars on their ground. Beds were at a premium, and the prices for an ordinary cot ranged from $5 to $20 for the night. Even the favored few who did secure places to sleep found little rest, for Long Island was ablaze with the glare of headlights, and the noise of the passing cars and the talking and shouting of the crowds made repose impossible.

OFFICIAL MOUTHPIECE

There was a notable gathering at the Garden City Hotel, where the roll of "Who's Who?" in automobiling might have been called and few of the celebrities would have been found missing. It was long after midnight when I finally climbed into a car and got out into the rush of automobiles on the road from Garden City to the grand stand. It took a careful man to drive along the crowded course and keep out of trouble in the heavy fog, and there was more than one slight collision. Some malicious person had sprinkled tacks and glass along the Jericho turnpike, and as a result a large number of cars were laid up with punctured tires, and many, rather than wait to make repairs, removed shoes entirely from their rims and bumped on without a tire.

Gambling flourished to a remarkable extent, and all along the roads wherever there was an electric light the sharps were out running crap games, poker parties, seven high and seven low, and even the old shell game, and they seemed to be doing well. There were people looking for excitement, and they took a chance.

Scores of private racing cars went up and down the roads at high speed, endangering the lives and safety of everyone on the highways. There was no way of restraining them, though, for the racing spirit was in the air and everyone was eager for speed.

The Storm Center at the Grand Stand.

With the first flush of dawn in the east the crowd began to arrive at the grand stand. Even the people who had reserved boxes and paid for them were out before 5 o'clock and began to take their places. When the calcium lights used on the stand paled, the rumble and roar of motors increased. The deputies and special motorcycle men were coming out and driving all autos off the course preparatory to making way for the racers. The roads seemed to be fairly alive with autos, and they came from all directions. From 3 o'clock on a continuous stream of them in rows three deep had been running past the grand stand, and it seemed that there was no end of them. Hundreds of cars blocked the roads, and in that few hours' time it is safe to say that several million dollars' worth of machines passed the grand stand. It was a wonderful and inspiring sight, and one that will live long in the memories of those who witnessed it. As an automobile parade or exhibit it overshadowed anything of the kind that has ever been witnessed.

It was a typical racing crowd, and the air savored of the danger and the mad dash, of the wild flirting with death that was soon to begin. Shortly after 5:30 o'clock the order was given to clear the course, and the constables and special officers set to work to accomplish what for a time looked like an almost impossible task. All roads leading into the course were blocked off, and finally the crush of machines was

WAGNER AND HIS DARRACQ WINNER CONFIDENTLY AWAITED THE WORD THAT SENT HIM ON HIS JOURNEY.

LE BLON THE THOMASITE, WAS THE FIRST CAR TO START THE RACE.

straightened out and the cars were gotten well off the roads. Six o'clock was the hour set for the start, and fifteen minutes before that time the loud roar of an auto motor with its gatling-gun sound was heard. "Clear the road!" was the warning cry. "Car coming!" And the red and yellow flags of the constables were waved high in the air. The bugler perched up on top of the grand stand sounded his warning note, and the people on the course scampered to points of safety. Down the road, hugging the ground closely, crept a dull grey object, and as it drew nearer the roar of its motor fairly shook the air. Two men were seated in the beetle-shaped affair, and their heads were covered with close-fitting hoods with large felt projections at either ear to break the wind force. Their goggles completed the picture and gave them an almost inhuman look. Over the wet roads came the car, and as the brakes were applied it skidded across the road, straightened up again and stopped. The machine was No. 1 in the race, driven by Le Blon, and was a 115-horsepower Thomas, one of the five cars representing the United States. One after another, the remaining seventeen starters arrived with a roar and a dash.

William K. Vanderbilt, Jr., the donor of the cup, arrived in his huge Mercedes at this time, and was received with a cheer. He had the word "Referee" painted on either side of the radiator of his car in large black letters. Mr. Vanderbilt took his place for a moment with his wife and her party in their box. Other society people were beginning to arrive.

The patrol judges and couriers on their motorcycles were sent out to speed over the course and clear it, and the judges and timers took their places. There was a dull fog hanging over the road, which was wet and slippery, and after a consultation it was decided to postpone the start fifteen minutes in order to wait for the fog to clear, for over on the Jericho turnpike it was almost impenetrable.

E. R. Thomas, who was at the starting point when Le Blon arrived, came down to greet the bewhiskered veteran of a score of auto races. The two shook hands and had a sort of a sign-word conversation. Le Blon appeared calm and cool, and, after Mr. Thomas had finished talking to him, went over his car himself, inspecting it thoroughly. It was noticed that he was not using non-skid tires, as were a number of the other drivers.

This question of using the steel-studded tires had been a momentous one for the tire men, and opinions seemed to be about divided, judging from the assortment of tires on the driving wheels of the big racers. Among the cars fitted with the non-skid tires were Jenatzy's Mercedes, Lancia's Fiat, Luttgen's Mercedes, Cagno's Itala, and Duray's Lorraine-Dietrich. The other drivers used the flat-tread racing-type tires and carried the steel-studded non-skids strapped on the rear of the car as extras.

Albert Clement, in the 120-horsepower Clement-Bayard, next arrived. This intrepid young driver was received with applause, as the story of his difficulty in getting leave of absence from the French Army was known. Elliot F. Shepard, in the 125-horsepower Hotchkiss, drew up with a roar and a crash and stopped his motor, and he was followed by Luttgen, Tracy, Wagner, Cagno, Fabry, the famous Duray, winner of the Ardennes, Dr. Weillschott, John Haynes, and Walter Christie. Foxhall P. Keane, alone of all the entrants, did not appear. He had not been able to repair a cracked cylinder.

The cars were carefully guarded as they stood waiting for the start, and when the tape was laid down the big Thomas car was pushed up to the line.

When the fifteen-minute delay was announced, owing to the fog, a question was raised as to whether the Darracq was within the weight limit, because of some extra parts that had been added since the weighing in. The matter was referred to Referee William K. Vanderbilt, who, after examining the car, decided that it was within the prescribed weight and could start in the race, as all the requirements had been complied with.

At the Beginning of the Journey.

As the hour of 6:15 approached, the grim Le Blon and his mechanic prepared for the start. Le Blon took his seat at the steering wheel, and E. R. Thomas rushed up to grasp his hand and wish him a final "good luck." The mechanic bent over the starting handle and gave it a turn, and instantly the air was rent with a volley of cannonlike explosions and streams of fire shot from the sides of the pulsating car. The engine was working well, and Le Blon speeded it up until the air roared with the volcanic explosions.

Starter Wagner and the other officials took their places. Chairman Jefferson de Mont Thompson, seeing the wheels of the big car over the tape, pushed the machine back, and then, as the last ten seconds came, "Wag" counted: "Ten—nine—eight—seven—six—five—four—three—two," and, leaning over, he fairly screamed into Le Blon's ear, "Go!" slapping him on the back. The great motor roared, as if in a rage, the car leaped forward, and in an instant Le Blon was flying down the road, a mere speck in the distance. The great race was on, a mad dash against time, with Death riding on every car and waiting at every turn. The crowd in the grand stand cheered, and before the roar of Le Blon's motor had died out, that of Heath's Panhard was heard and his great blue monster was pushed to the tape. Again the slow counting, the great crash of the engine explosions, and the big car was off in pursuit of the red monster ahead of it.

A minute later Jenatzy, the red-bearded speed fiend, was hurtling over the road, and the great Lancia stood before the tape, his car emitting huge sheets of clear blue flame from the exhausts. "Lancia! Lancia!" yelled the crowd, and the daring driver smiled. Starter Wagner put his hand on Lancia's back and the Italian waved him away, and then as the

TRACY RECEIVED A TREMENDOUS OVATION AS HE STARTED.

CAGNO FAVORED WITH A COMPARATIVELY CLEAR COURSE BEYOND KRUG'S.

word to go was given, the great car shot forward and the driver raised both his hands high above his head in acknowledgment of the cheers of the crowd. An instant later he was gripping the steering wheel again and was smashing down the road at a terrific pace on his mad dash against time.

Lawwell, in the Frayer-Miller, was next towed to the line, and his great engine gave out clouds of smoke that almost choked the officials and completely enveloped the machine. He got off at the word with his motor missing fire, and was gone down the stretch after the rest. Shepard, in the Hotchkiss, Luttgen, in the Mercedes, and Nazzaro, in the Fiat, followed, and all made good starts. The steady explosions of the Fiat motor and the clear sound and bright blue, smokeless flame of the exhaust occasioned no end of favorable comment from the technical men on the grand stand.

Next came Tracy, the winner of the elimination trials, in his big Locomobile. The crowd stood up and howled for him, and Tracy bowed. He got away with his engine running smoothly and made a clean and good start.

Wagner, in the Darracq, the dark horse of the race, was next to get the word. He drove up to the starting line with the hood off his engine, and the little car, with its wire wheels and peculiar-shaped radiator, looked anything but a match for the huge juggernauts that had gone before it. The Darracq did not look like a winner, but then, appearances are deceitful, and so it proved in this case. The doughty little car got away with a roar and a whiz, making as much noise and fuss as its more massive opponents. The clear explosions of the motor told of power, the power that churned the wire driving wheels around at the terrific pace necessary to beat the field and win the Vanderbilt Cup, that $3,000 trophy on which millions have been spent.

Keene, in his Mercedes, was to have been the next starter, but a cracked cylinder had put him out of the race. He had hoped to be able to make repairs in time, but had failed to do so, and the gentleman driver was eliminated. His time was counted out the same as if he had started, and then the lead-colored Itala driven by Cagno was pushed up to the starting line and got away.

SHEPARD ON ROSLYN ROAD

The green-coated Haynes machine, one of the two touring cars in the race, received attention next. John Haynes had taken Harding's place at the wheel, and smiled confidently to his friends as he awaited the word to go. He started smoothly and steadily, and was out of sight down the course as quickly as his larger competitors.

Then came the Bayard-Clement with its plucky driver, Clement, the boy who had plead with the martial martinets of France for leave of time from the army in order to come to America and risk his life in the death-defying dash over the Nassau circuit after that most elusive of prizes, the Vanderbilt Cup. He wore a blue sweater matching the dark blue racing monster his father had built for him. Clement sat at the wheel of his car easily and confidently and waited the word to do and dare.

Starter Wagner was calm and cool, and decided to parlez in French. As the last ten seconds came he counted slowly and deliberately: "Dix! Neuf! Huit! Sept! Six! Cinq! Quatre! Trois! Deux! Partez!" and with a roar the big car leaped forward and was gone.

Dr. Weillschott, in another of the big Fiats, started next. He little realized, as he sat before the grand stand waiting for the word to go, that his speed glory would be so short lived. His engine ran magnificently, the exhausts giving out that same clear-ringing report and clean blue flame that the other Fiats had.

Christie, in his broad-wheeled, flat-bellied touring car, came to the starting line next. His mechanic, evidently a bit rattled by the excitement, started and left the car just as the last ten seconds were being counted before the start. Christie screamed at him to come back,

LANCIA PLOWING HIS WAY THROUGH THE PERSISTENT CROWD NEAR KRUG'S.

MRS. W. K. VANDERBILT JR. WAS ALWAYS INTERESTED.

and the fellow just managed to tumble into his seat as the word to go was given and the car dashed off down the road.

Duray, in the Lorraine-Dietrich, the winner of the Ardennes, next reached the tape. His big engine seemed to be missing fire, and as it stood there a stream of water leaked out from the radiator. A cry of dismay went up, as those who saw the water thought that the radiator had sprung aleak. It proved to be, however, an excess of water escaping from the overflow. Both Duray and his mechanic wore on the back of their sweaters the cross of Lorraine.

The de Dietrich got away in good shape and was followed a minute later by Fabry, the last starter, in his 120-horsepower Itala. The latter made a rather poor start and almost stalled his motor, but got the engine going again by the use of his clutch before the car had lost momentum.

Waiting at the Grand Stand.

All of the cars started, the hundreds who had gathered in the grand stand sat back and gave their attention to the score board and awaited with bated breath the announcements of the positions of the various cars as they were 'phoned in to headquarters. The muddy condition of the course and the great crowds that lined it seemed to presage accident and mishap, and the reports were most eagerly waited for. By a cleverly arranged map of the course placed for the benefit of the press representatives, it was possible to see the position of each car at any point on the course.

The crowd, greater than at any previous race, gave signs of becoming unmanageable just after the start, and 'phone reports were received from all points on the course about this. Orders were given for the constables to drive the people back and to use their clubs if necessary.

The first announcement made after the start was that Le Blon, driving the Thomas car, had stopped at the five-mile post with his engine running poorly. "The Itala car is running poorly at Jericho," was the next announcement, and this was followed by the statement that it was pouring rain at Mineola. Not a drop was falling at the grand stand. It was next announced that Tracy had lost a tire at the Willetts road turn, and later that he was stopped to change his flat treads on the driving wheels to steel-studded non-skids.

Just fifteen minutes after Fabry had started, the cry of "Car coming!" was raised, and the red of the flagmen began to wave along the course. The bugler blew his warning note from the top of the grand stand, and everyone arose and leaned forward, anxious to get a glimpse at the approaching car. A low purr of a motor that quickly heightened into roaring explosions of gatling-gun rapidity was heard, and with a roar and a whiz Jenatzy in the Mercedes sped past the grand stand on the finish of his first lap. "Car coming!" was again raised and Lancia passed, followed shortly by Shepard, who in turn was closely pursued by Lawwell and Nazzaro and Wagner.

"Flying" was the only word that would express the terrific speed with which those great juggernauts swept past the stand, and the rush of the fastest express train seemed snail-like in comparison. "Zip, Zip, Zip, Zip," and they were gone. Shepard's round had been made in 32:26, and Lawwell's in 33:34, while Nazzaro had clipped off the course in 30:41, and Wagner, the daring Darracq driver, in 28:26. The excitement at the stand when these cars passed was terrific.

Luttgen, in his Mercedes, passed the stand next, having made the round in 34:32, and Heath, in the Panhard, of whom so much had been expected, followed close behind, driving at a terrific pace to make up time. He had taken 39:50 for the lap, much to the disappointment of his admirers.

Directly after came Cagno and Duray, running a close pursuit race at death-defying speed. "Whiz, roar, whiz," and they were gone, and the crowd went wild with excitement.

It was 7:04 o'clock when Tracy came down the course, running slowly. He came to a full stop in front of the grand stand and screamed excitedly to Chairman Thompson: "People will surely be killed unless you keep them off the track. They crowd the turns and the road, and some horrible accident will happen!" His voice was choked with excitement, and as he uttered these words of warning, the great motor of the Locomobile roared out as it was speeded up, and the big car shot down the road. The crowd cheered, for what, they

A HARD WORKING TRIO: VANDERBILT PARDINGTON, THOMPSON

themselves didn't know; but Tracy and cheers seemed synonymous, and they cheered. "Telephone the order all along the course that unless the people keep back the race will be stopped!" shouted Referee Vanderbilt, and the word was sent out. Then Mr. Vanderbilt went around the course and gave personal warnings.

Dr. Weillschott Has the First Accident.

It was announced at 7:20 o'clock that car No. 16, the 120-horsepower Fiat driven by Dr. Weillschott, had gone over the embankment at the famous "Dip of Death" at Manhasset and was so badly wrecked that it was out of the race. No one was seriously hurt, was the announcement.

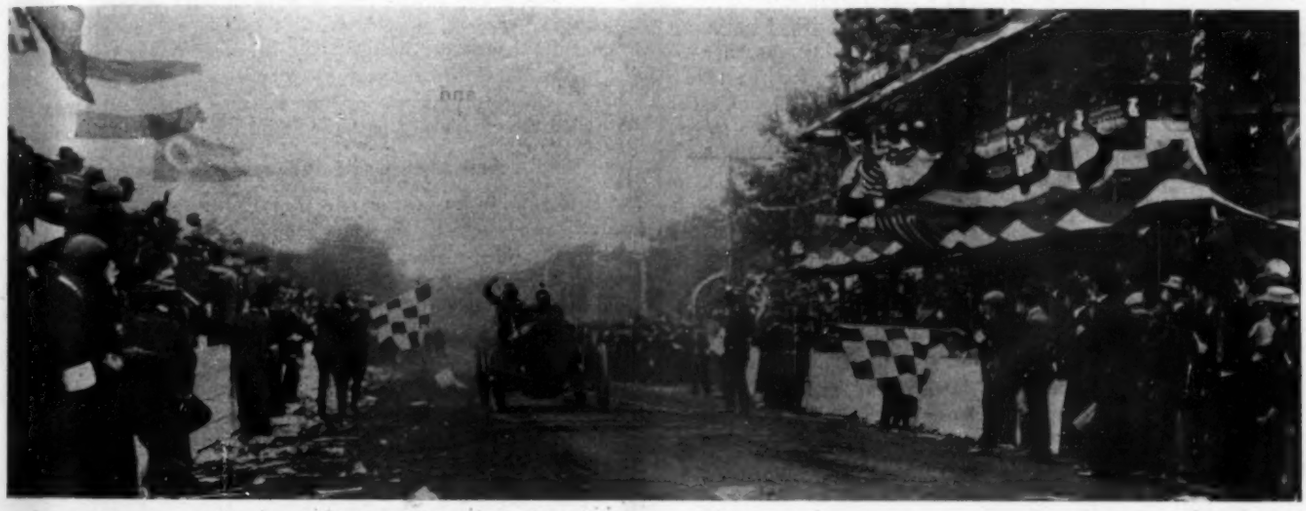
"Le Blon has been delayed at Westbury Turn, where he lost a tire," was next announced, and the delay to the Thomas car was explained. Lawwell was next reported as delayed fifteen minutes by the loss of two tires at Jericho. It was further reported that Fabry in his Itala had met with difficulty at the Krug's corner and been obliged to slow up, and also that Luttgen in his Mercedes was in trouble at Mineopla with his engine working badly.

of the race all but one of the starters was in the running, while in most foreign contests a third of the field has been usually laid out and been out of the race in the third round.

One of the Dramatic Incidents.

At 7:27 one of the most dramatic and impressive incidents of the race occurred. Two cars hove into sight as the bugler's note of warning rang out, and the grand stand crowd rose in a body. Down the stretch they came at a furious pace, Nazzaro in the lead and Luttgen pursuing. The air rang with the cannonnade of the motor explosions, and almost at the same second the two whizzed past, Luttgen's front wheels but a scant two yards behind Nazzaro's rear ones. When the cheers of the crowd died down, the strains of the band's music could be heard, and the musicians were playing "The Star Spangled Banner." Instantly those who had resumed their seats arose, and every man, including even the busy press representatives and officials, stood with unbared head for a full minute.

The passage of the various cars in the race was noted with interest, but around the five machines struggling for victory



JENATZY, DISAPPOINTED BUT EXULTANT, FINISHING A RACE IN WHICH HE WAS ALWAYS A FACTOR.

Jenatzy Was First the Second Round.

Jenatzy was the first to finish the second round, crossing the line with a great burst of speed at 7:17:18. Lancia followed at 7:18:01, going at a terrific pace, which in its seeming madness outdid the awful pace the foreigners had been setting. Wagner finished his second round at 7:20:22 and must have been going fully ninety miles an hour as he whisked past the stand. He was cutting out the pace that presaged victory. The time for the lap was 27:56. Wagner was leading Duray at this point by 2 minutes 58 seconds. Duray in turn led Lancia, who was holding third place with a leeway of 51 seconds, and Jenatzy was fourth, with Shepard fifth. Duray's second lap was finished in 28:52, and Lancia's in 29:44, while Jenatzy took 30:16 for the distance.

Jenatzy finished his third round at 7:46:25 and was followed at 7:46:56 by Lancia, whose great car shrieked and roared past the stand like a projectile from some huge cannon.

At 7:48:39, just 56 minutes 22 2-5 seconds after his start, the cry of "Car coming!" was heard, and Wagner hove into sight on his third round. He was leading Lancia and Jenatzy by fully four minutes and appeared to be running away with the race.

Duray finished his third round with a great burst of speed, being then 3 minutes 10 seconds behind Wagner and 1 minute 26 seconds ahead of Lancia, who crashed past the stand in hot pursuit. It was a remarkable feature that at this stage and in the lead the attention of the crowd centered. From time to time indefinite reports of accidents reached the stand.

Wagner on His Fourth Circuit.

Wagner completed his fourth round at a mad pace at 8:16:21, having covered the lap in 27:42, which was the fastest lap made until that time, beating his own previous record lap of 27:26 and giving him an average speed for this lap of nearly 65 miles an hour and for the four laps of 63:61 miles an hour. Lancia passed 4 minutes 52 seconds later, and Jenatzy dashed past in third place, nineteen seconds behind the Italian daredevil. Duray had dropped back from second to fourth place in this round and was 3 minutes 5 seconds behind Jenatzy. Clement was fifth in this round.

Lawwell finished his third round as the leaders were completing their fifth lap of the course. Tire and engine troubles had delayed him. This fifth round was full of excitement and death-flaunting driving. Lancia, the fearless, started after Wagner in dead earnest, and a mile-a-minute gait was made to look slow on some of the straight stretches. Excitement rose high, for the intrepid Italian, who at the start of the lap was nearly five minutes behind his French rival, at its close dashed past the grandstand but fifty seconds behind.

Wagner, still maintaining his magnificent and consistent speed, finished the sixth lap first. His pace had been a heart-breaking one, for he had run away from Lancia, and instead

of 50 seconds almost seven minutes separated the two, or, to be absolutely correct, 6 minutes 30 seconds. "Zip, Zip, Zip," Lancia, Jenatzy, Duray pass, Lancia leading Duray by seventeen seconds and Duray in front of Jenatzy.

When Tracy Gained His Honors.

The honors of this round, though, went to Tracy, who made the fastest round of the day, 29.7 miles in 26:21, a speed average of over 67 miles an hour.

Despite the cheers, however, it is still Wagner, Lancia, Duray and Jenatzy, with Clement and Shepard in fifth and sixth places and the others whizzing in hopeless pursuit.

The seventh round found Wagner still ahead in the mad pursuit, with a lead of seven minutes, and Lancia, Jenatzy and Duray crazily dashing after him. Shepard, who had been driving a good race and who after killing a man continued on his way, was reported down and out with a broken connecting rod, and words of sympathy are heard for him throughout the stand.

The Four That Commanded Attention.

The eighth lap comes and the four leaders draw closer. The crowd at the grand stand are at the highest pitch of excitement. The madness of speed has taken possession of them. Wagner flies past the stand first, with Lancia and Jenatzy in reckless pursuit. The great racing cars are out to their last notch, and the supreme moment for the test of men and machinery has come. The tag end of the racers rush by in a wild hope that something may happen to give them a lead and a chance. There is always that possibility of accident that gives hope until the race is done. "Car coming!" is their announcement; roar, crash, whiz, bang, and they are gone, and the crowd has forgotten them. It's the four mad foreigners around whom interest centers and around them alone.

Ten miles from the stand the report comes! "Jenatzy passes Wagner!" and the crowd goes wild. Then a few minutes later Wagner passes Jenatzy with a mad dash on a turn, and then Lancia gets the lead as far as position in the race goes, but Wagner leads in elapsed time by five minutes.

On the Telling Ninth Lap.

They start on the ninth lap and everyone stands up. The excitement is intense and each eye watches the score board intensely, while every car is strained to catch the announcer's words. Wagner in a final burst of speed regains the actual as well as the time lead. Tracy smashes past the grand stand at a terrific pace, but the crowd never heeds him.

Lancia and Wagner continue their breakneck speed, with Jenatzy falling behind and Duray and Clement racing ahead for nearer honors to the first place. Duray is driving a wonderful race and his speed is terrific. He flies past the stand in third place. The excitement is at its highest pitch, and the men policing the course have the greatest difficulty in controlling the crowd and keeping them off the track.

And Then the Momentous Tenth Round.

The tenth round starts with Wagner a full five minutes in the lead, and the air filled with cries of "Wagner," "Wagner and France to Win." Men and women fairly danced around the grand stand. The nervous tension is so high that it is impossible for them to remain quiet or to keep their seats. The motors seem to roar louder than ever as the great cars dash by the stand, and every eye watches the board indicating the position of the racers. Together the great machines rush along, holding their respective positions, and then comes the dire announcement: "No. 10 delayed by tire trouble at Bull's Head Turn!" A groan goes up from the grand stand crowd. "Is the daring Frenchman to lose after driving such a plucky race?" "Will he run flat?" "Can he make repairs," and a thousand other questions are asked. The seconds pass and the crowd is mad with excitement, on fire with expectancy and anxiety. They know that Lancia is driving as if the fiends of hades were after him. Driving, regardless of life, defying death to win.

"Will Wagner never start?" is the cry heard. The sporting blood of the crowd is up. Lancia is a favorite, but Wagner has fought a game fight and has had victory in his grasp. The crowd wants to see him win. Then No. 18, Duray, begins to be heard from. He is but 1 minute and 24 seconds behind Lancia.

Never in the history of automobiling has a man driven a wilder, a more desperate race than did Wagner after his tire was repaired. The spirit of daredevil daring was in him and the blood that surged through his veins cried out: "Risk everything, even life, but win." And Wagner was ready and willing to answer the call. The Darracq motor was opened to its limit and the wheels flew around at a pace that annihilated distance as it has never been annihilated before on Long Island roads. There was no stopping for turns, for Wagner was to win or die.

"Car coming!" is the old, old cry. Starter Wagner rushes out and waves the checkered flag that is the signal to the drivers that the race is finished and they have completed their tenth lap. Down the course dashing like a mad thing between the lines of people who brave, aye, even court death, to see this wonderful flying mass of machinery pass close to them and feel the rush of air it makes, comes Lancia. The band begins to play but no one hears it, and with a roar and a swish the car dashes past the stand, the first to finish.

And Then Came Wagner, the Winner.

It is gone in an instant and then the crowd begins to figure out Wagner's chances. He has over five minutes in which to finish and the clock ticks steadily on. Excitement is a top temperature, and the people are mad with it. One minute passes, then two and then three, and still Wagner does not come. The nervous strain is terrible, and the crowd waits and waits and waits. Suddenly the notes of the bugle are heard and the red flags begin to wave their warning and down the course comes a mad thing, hugging close to the ground and skimming over it at a pace that beggars description. "It's Wagner, it's Wagner!" the cry is raised, but almost before it leaves the throats of the crowd a dark blurr whizzes past the stand, a thing that goes so fast that the eye can hardly follow it, and the clocks record the finish of the greatest race America has ever known.

Before the crowd can realize what has happened the cry of "Car coming!" is again raised, and the people who had crowded the course dash for places of safety. Jenatzy dashes past the finish line, his race over, and Duray follows in third place, by elapsed time, and then finally Clement. Then the crowd went mad. It burst from all restraint and crowded on the course.

"Have the race stopped," fairly shrieked Referee Vanderbilt. "Telephone everywhere to raise the yellow flags. Stop the cars or someone will be killed." Before the officials could locate him he was caught in the crowd that filled the track and had difficulty in getting back to his box.

The cars were stopped somehow and the crowd received the announcement of Wagner's victory with loud cheers and then they did as all crowds do, they forgot the terrible risks the drivers had taken, they forgot the horrible injuries and deaths of some of the spectators, they forgot everything but their desire to get home and the rush for the trains and autos started. The Vanderbilt race was over and the crowd was ready to turn to the next interesting game that might attract them, but they unanimously agreed withal that it was the greatest race of them all and that in daring, skillful driving and wild speed it had established a record for the world. It was a wonderful, a thrilling sight and one that will live in the memory of those who saw the race long in the years to come.

TRACY MAKING THE FASTEST ROUND OF THE ENTIRE RACE, ATTAINING A SPEED OF OVER A HUNDRED MILES PER HOUR.

TRACY'S UNLUCKY SKID AT EAST NORWICH TURN

By HARRY W. PERRY.

IF it was with the expectation of seeing something exciting that the 3,000 spectators gathered at the East Norwich turn and persistently crowded far out into the road, despite all efforts to restrain them, they were sufficiently appeased when, in his seventh round, Tracy's car skidded and struck two of the onlookers, causing the second most serious accident of the day, and by a miracle just missed causing several fatalities. As it swung out the car knocked down a boy and the rough, steel-studded tread of the rear wheel ground across his legs, almost severing the left foot from the leg just above the ankle.

The same wide sweep also caught two men, one of whom was knocked down, while the other was lifted bodily into the air and tossed about fifteen feet, landing in the grass plot in front of the crossroads hotel on the outer side of the turn. Neither man was seriously injured, but the boy was quickly taken in an ambulance to Oyster Bay, on the north shore of the island about two miles from East Norwich, and placed aboard a boat, on which he was taken to his home in Norwalk, Conn., across the Long Island Sound. His name is Ralph Baldwin, and he is fourteen years of age. He was accompanied throughout by his father, Dr. Baldwin. Neither father nor son is personally known to Tracy, but Tracy called the father up by telephone on Sunday and learned that the boy was doing well, and that, although the surgeons had wanted to amputate both feet, the family had refused.

Throughout the race Tracy was one of the most cautious in taking the corner, slowing down to a touring speed and shaving the angle close to the concrete platform in front of the general store at the inner angle of the turn, but in the seventh lap he ran down to the turn faster than usual and when the brakes were applied quickly the rear wheels skidded in the loose gravel and the end of the car slewed far out. It is not true, as was reported, that the car failed to make the turn and shot on up the Oyster Bay road. The accident was due wholly to the obstinacy of the spectators in pushing out on the course. But after this accident it was easier for the two policemen in city uniforms and the flagmen to keep the people back.

Immediately after the accident Tracy stopped at the Diamond tire station, which had been located one hundred yards beyond the turn on the North Hempstead turnpike, and had the men turn a reversed spring shackle that had been turned while bounding over the Jericho turnpike a few minutes before. These misfortunes to the American favorite, together with the accident to Shepard's car and the report of the fatality at Krug's Corner of which he had been the innocent author, tinged all interest in the contest with feelings of sympathy and commiseration for both men. When, in the second round, Tracy had to stop at the tire stand and lose ten minutes while a right front tire was put on to replace one from which the steel-studded rubber tread had been stripped in making the turn, it was recognized that the chances of the man and car that had been picked to make a good showing for America were seriously imperiled.

In the sixth lap Shepard's Hotchkiss car rounded the turn apparently all right, but came to a stop directly in front of a telephone pole about an eighth of a mile beyond the corner. It lay on the inside of a long, curving descent close to the side of the road and, with the crowd gathered about it, presented possibilities of an accident that fortunately did not happen. While Shepard went back to the corner to telephone a report of the accident to the car, his big French mechanician stood disconsolately beside the machine with one of the helpers from the Hotchkiss station, which had been located alongside of the road just at the rear of the general store on the corner. So slight a thing as the stripping of the threads on a bolt in a connecting rod had permanently put the French car and its American driver out of the race after it had run in fourth position for five rounds. Coming loose, the connecting rod had dropped down and poked a hole in the crankcase. The crankshaft, however, was not broken. Shepard appeared very listless after learning of the fatal result of his accident at Krug's Corner, and wandered about East Norwich until the end of the race without taking further interest in it. He had stopped for adjustments and supplies twice during the race at the Hotchkiss stand.

Wagner lost the non-skid tread from the left rear wheel of his Darracq on his seventh lap. It occurred half a mile west of East Norwich, right at the top of a rise where the straightaway began. It was there that the drivers opened up their cars for the long, straight stretch where they made their fastest time. Evidently the right-angle turn in the village and the sinuous descent in going out of it had loosened the tread. Suddenly there was a ripping sound, followed by two sharp slapping cracks and the tread with its studs shot a dozen feet into the air above the car, writhing like a snake. The driver and mechanician looked back, but the car did not slacken speed.

Interest in the contest did not wane at East Norwich until the yellow flags were ordered displayed to stop the race, for no one could tell whether Wagner, Lancia or Duray had won, as their elapsed times at the grandstand were unknown until the announcement finally came over the wire.

SWING ROUND THE OLD WESTBURY HAIRPIN

By HOWARD GREENE

AT Old Westbury, where the course turns back upon itself and forms the dreaded Hairpin turn, hundreds of touring cars and thousands of spectators gathered to see the racers negotiate the difficult curve. The assemblage of touring cars was little short of wonderful. Along the several roads leading up to the turn they were packed almost wheel to wheel near the course, leaving a lane so narrow that it was a difficult matter for two cars to pass; in fact, several minor accidents resulted from this crowding. Further back from the course the cars were parked along the roadside under the trees, and the lines extended back for nearly half a mile on the principal roads.

As might be imagined, the cars were of all kinds, sorts and conditions, and some of the old-timers looked as though they had been rudely awakened from what had been intended for their last long sleep, to do their wheezy, clattering best for one more day. Picnic parties were the order of the day, and the numerous refreshment tents did a rushing business until the hungry crowds had cleared the tables of eatables at prices that rose in proportion as the stock on hand diminished; in fact, the most exciting incident of what proved to be an extremely quiet forenoon was a scrap between three hungry automobilists for a pie. Only one of the indurated disks remained when the three appeared. One demanded a piece of pie, while the other two each demanded the whole pie. The proprietor, in an agony of doubt as to the most profitable course to pursue, took up the pie and in a moment of thoughtlessness placed it within reach of the three men. In a moment there was an empty wooden pie plate, some sticky fragments on the grass, six pie-covered hands and three disappointed men arguing as to who should pay for the pie that no one got. The cry of "Car coming!" quickly followed by "Two cars coming!" put an end to the controversy, for the three belligerents fled to the roadside, leaving the proprietor to settle the dispute with himself.

Evidently fear of the Hairpin had engraved itself deep in the minds of the drivers, for almost without exception they took the greatest pains to avoid trouble. There was only one car that caused any excitement, and that was Duray's De Dietrich, which slewed off toward the outer bank on the last round and caused a wild scramble among the foolhardy spectators who crowded into the most dangerous positions they could find. It was amusing to note that the scramble continued for several minutes after the car straightened out and disappeared up the road.

Wagner and his little Darracq were notably regular in getting around, and shared the cheers of the crowd about equally with Jenatzy, Lancia and Le Blon. Tracy, however, got the best the crowd could muster up in the way of enthusiastic applause, even though it was plainly seen that he was driving a losing race. Much conjecture was indulged in as to the cause of his trouble, as his car appeared to be running with absolutely no indication of mechanical trouble, and no reports were received from other points on the course; in fact, the Hairpin turn was apparently isolated, for the usual rumors that fly about among such crowds were conspicuously absent, and no one seemed to know anything about what was doing elsewhere. Even the tales of fatal accidents that circulate in races where no accidents occur were missing.

Some of the spectators were treated to a rather spectacular sight toward the end of the race. From many parts of the road just beyond the Hairpin it is possible to see the course where it approaches the turn, and cars can be seen coming for a considerable distance along the parallel road. Haynes in the Haynes hove in view on his seventh round, and immediately afterward came Clement in his dark racer. At the distance it was difficult to distinguish the cars, and when Clement overhauled Haynes and passed him as if he had been anchored to a tree, the French car looked to be going at least a hundred miles an hour, and people held their breath and wondered how the speed could be got under control in time to negotiate the curve. The mystery was explained when the green color of the exceedingly consistent Haynes was seen. The little green car had a warm spot in the hearts of the watchers, for it was such a "little chap," compared with the others, that its work stood out rather conspicuously, and Haynes was greeted with particularly hearty cheers as he came around regularly and took the turn in the same careful but fairly fast style.

Notwithstanding the endless tire troubles of the American cars —troubles of which most of the spectators at the Hairpin were entirely ignorant until the race was over—the Diamond tire station just beyond the turn was a quiet place indeed, the only work done being the renewal of two tires for Le Blon's Thomas. Several cars went by with tires apparently on the verge of dissolution, but nothing happened to them as long as the cars were in sight. Clement went past once with something that looked like a piece of the tire whirling round and round with the wheel and

TRACY LOCOMOBILE

DURAY, DE DIETRICH

SHEPARD. HOTCHKISS

LE BLON COMING UNDER THE RAILROAD BRIDGE AT ROSLYN.

making a sharp whistle that could be heard distinctly by anyone close to the car.

It was almost blood-curdling to see the foreign drivers deliberately turn round and examine their tires while their cars were picking up speed after passing the turn; and in this respect Wagner was conspicuous. He would hold his wheel in his left hand and lean far out, looking at the front and then at the rear tire on his side, while the machine flew along at not a foot under sixty miles an hour, seeming to let the steering take care of itself for the time. And when it was seen that the terrible Hairpin had left the tires unscathed, the driver would settle down in his narrow seat and open up for the straight road ahead.

Taking it all in all, the race as seen from the Hairpin turn was exceedingly monotonous, and the spectators who walked out to the comparatively straight stretches on either side of the turn saw more than those who stuck to the narrow semicircle of deep sand. And it was a disappointed crowd that started its slow march homeward, after Wagner had been declared winner, in the face of a driving rain. Most of the spectators would far rather have seen either Lancia or Jenatzy win than a French driver, as long as the home men had no chance, and therefore nearly everyone had a disappointment to nurse as he went home.

THE TIRES USED IN THE RACE.

Editor THE AUTOMOBILE:

There is one thing we wish to say about tires in the Vanderbilt race—there was trouble. No one escaped entirely. It was due to the use of leather non-skidding tires. The course was damp and slippery and rain threatened. Drivers asked for the non-skid tires and they were put on. Every machine, American and foreign, suffered in consequence, although it was expected that they would. When Tracy changed back to the flat tread regular Diamond wrapped tread tires at about the end of his fourth round, then made a speed of 26:21—the course record—the work of the tires was magnificent. He had no trouble then or later. The simple fact is that non-skid tires are not durable under high speed and the reports from every American and foreign control showed this one thing strongly. Now the object of this letter is not to ask you to condemn non-skid tires, but to request that in your story of the race you state that the leather-covered non-skid tires were used, also that you let it be known that Tracy's great time was made on the regular construction. The contrast speaks for itself.

THE DIAMOND RUBBER COMPANY,
James A. Braden.

New York City.

THIS PHOTOGRAPH GIVES A COMPREHENSIVE IDEA OF THE THOUSANDS THAT GATHERED AT THE DANGEROUS HAIRPIN TURN.

It was somewhat curious that the weather on the day of the race almost exactly duplicated the conditions that prevailed during the elimination trial two weeks previous.

DURAY IN HOT PURSUIT OF SHEPARD

POPULAR ALBERT CLEMENT BEGINNING THE ASCENT OF THE DIFFICULT AND WINDING HILL AT MANHASSET.

MANHASSET HILL HAD ONE DISASTER

PERHAPS the most beautiful section of the Vanderbilt Cup course, from a scenic point of view, is the double hill at Manhasset, where the road dips into a hollow and then winds up in a sinuous course to the Lakeville road. But there is little beauty in the place from the point of view of the driver of a racing automobile, for the combination of rapidly recurring turns and steep descents and ascents make the Manhasset corner a place to be negotiated with the utmost care. The crowds which lined the course were given all the spectacular sights they came to see, though the most exciting event of the day occurred early in the race—in fact, during the very first round.

Dr. Weillschott, driving a Fiat on the Italian team, was the fifteenth starter. All went well until the car had passed the sharp turn known as the Old Westbury Hairpin, had made the descent into the "Dip" and would soon have been around the Manhasset turn and off for Lakeville, when something in the steering gear suddenly became deranged, rendering the car unmanageable. At that moment the Italian doctor proved himself a hero of no small caliber. Standing up, he waved his arms to the spectators as a sign that the car was out of his control, and at the same time shouted at the top of his voice. There is no doubt whatever that in thus risking his own life Dr. Weillschott saved the lives of many spectators, for his signals were at once understood and most of the people fled to safety in the nick of time. A few yards beyond the corner the car swerved from the road and crashed through a safety fence. Directly in the path of the car was a twelve-year-old boy, Johnny Brooks, who was knocked down because he failed to recognize the signals and did not attempt to move until the car was almost upon him, when it was too late. The car was finally brought up in a ditch a short distance from the roadway, with both driver and mechanician in their seats, uninjured. The damage to the car, however, was such as to make it quite impossible to think of driving it any further in the race, and it was therefore counted down and out—the first to fall. There still remains to be told the most curious part of the story. Little Johnny, who was knocked down by the car, was immediately counted as among the slain by the spectators, and he was tenderly picked up and carried to a nearby farmhouse while word was sent to the grandstand to send a physician post-haste. The physician arrived in record time, rushed into the

house and breathlessly inquired for the boy, and found that he was out on the road watching the progress of the race—in good working order! Nevertheless, rumor and the daily papers have had the lad dead, dying, and in all stages of disintegration, and much good sympathy has been wasted on him. His worst injury was a very severe scare.

Two boys who were standing with their bicycles in the path of the wild-cat Fiat had a terribly close shave, abandoning their wheels and jumping just in time. The bicycles were turned into junk in a twinkling, but that was about the most serious thing that happened, apart from the damage to the magnificent racing machine on which the young Italian doctor, who is reported to be a wealthy amateur, had placed his hopes.

A short distance beyond the Manhasset turn Christie had a narrow escape from trouble. His car ran down a dog, and the car was caused to swerve for a moment. Christie skillfully straightened it out, however, and went on, leaving the dog stone dead in the road.

weather, and out of 48 starters his was the only car to finish with a perfect score. He has won many minor hill climbs and speed tests here and abroad and is unquestionably one of the most daring drivers in the world to-day.

THE HISTORY OF ARTHUR DURAY.

Arthur Duray, pilot of the De Dietrich, was born in Brussels, February 9, 1882. He is an old bicycle rider. He started in the motor car races in 1898, in the *Critérium de Spa*, where he drove one of the famous Gobron's Torpedos. He participated in almost all of the international competitions since 1901. Was in Paris, Madrid, in 1902 and in the Gordon Bennett Cup races in 1903 and 1904. He won the Belgium Ardennes Circuit this year in great style. Likes his big De Dietrich racer better than himself, and consequently takes care of it in the races. Duray was one of the leaders in the race whose average was better than 60 miles per hour, the exact figures being 60.27.

WAGNER BOWLED UP THE MANHASSET HILL WITH SCARCELY ANY DIMINUTION OF THE SPEED HE HELD THROUGHOUT THE RACE.

CONCERNING LANCIA'S RECORD.

Lancia's first great victory was the Brescia road race in 1903, when he covered 200 miles at an average rate of 70 miles per hour. In the Gordon Bennett race of 1905 he had obtained a long lead and was a certain winner when a stone struck his radiator, ruining the chance of victory. He made the two fastest circuits of the day. At the 1905 Vanderbilt Cup race, after he had secured a lead of an entire lap, 28 miles, over all competitors and had broken his own previous record for road racing, his Fiat was disabled by another car.

In the Grand Prix of France he won fifth place. His most marvelous victory, however, was winning the Great Coppa d'Oro Endurance run of 2,670 miles through the Italian Alps, where his 35-horsepower Fiat car ran for nine days through all kinds of

THE LIFE OF CAMILLE JENATZY.

Camille Jenatzy, the famous driver of Mercedes racers, was born in Brussels in 1871. He is not only a daredevil, but with his sterile beard, his piercing eyes, and that funny racing cap, Jenatzy has really a fantastical, devilish, Mephistophelic appearance when he passes in the wind, half smiling, at the wheel of his rapid Mercedes. Has been everywhere since the origin of the racing game, driving all sorts of cars, and lastly the Mercedes. Is an electrical engineer of standing. In 1900, piloting for the first time his famous electric freak car "La Jamais Contente," he broke all records, covering the kilometer in 32 seconds. Was a splendid winner at the third Gordon Bennett Cup held in Ireland in 1903. Jenatzy's average speed in the Vanderbilt Cup race was 58.01 miles per hour.

KRUG'S CORNER WAS A SOURCE OF PERIL

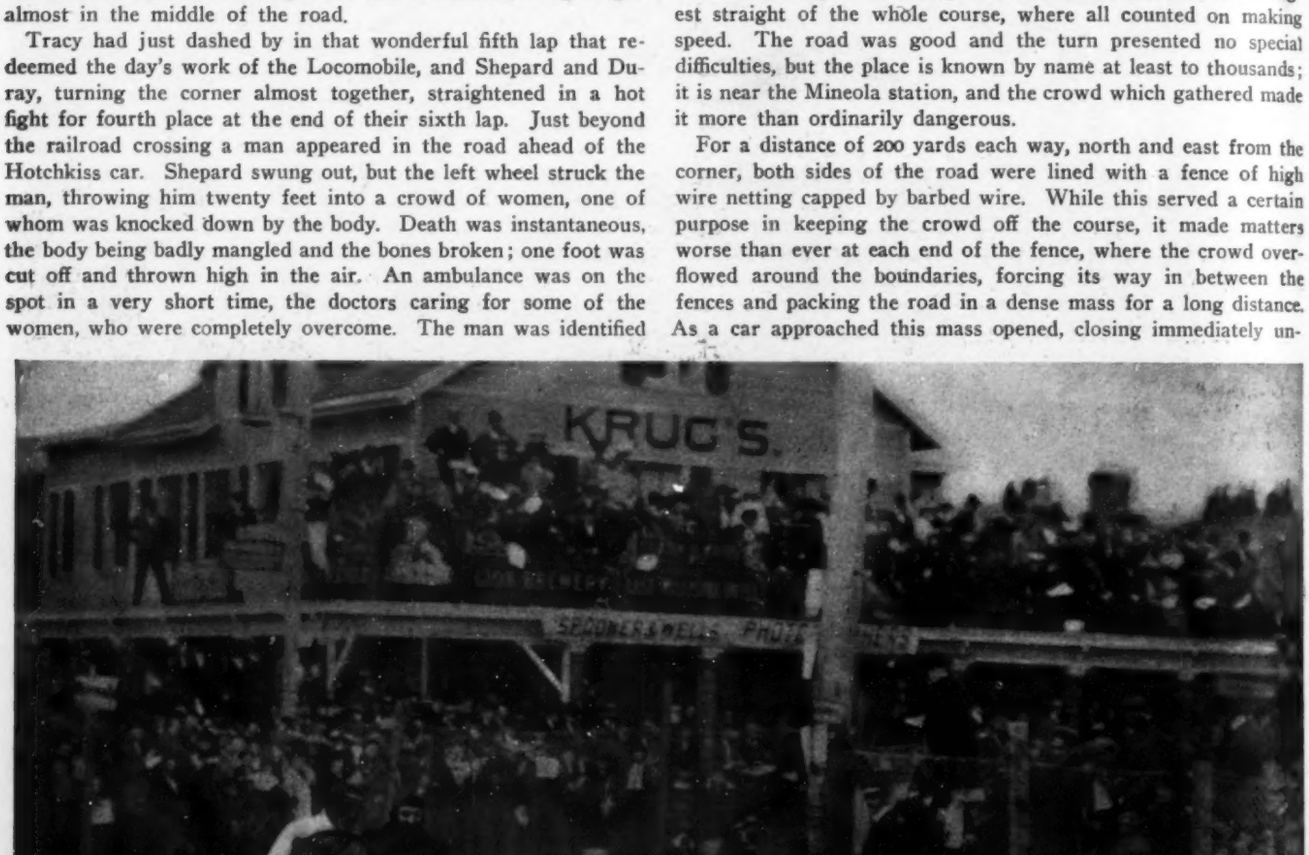
By W. P. STEPHENS.

AFTER two years of almost miraculous freedom from fatal accident on the Vanderbilt course, at last the expected happened, and one of the hundred thousand who recklessly risk their lives for a closer glimpse of the flying cars paid the full penalty. In the middle of the race, when the excitement was at its height, a spectator deliberately walked into the road in front of a flying car, undeterred by the warnings of the officials and the cry of "Car coming!" and was almost torn to pieces. The accident occurred at the beginning of the straight after Krug's Corner was turned, just where the cars gather speed for a wild dash of three miles over a straight course to the grandstand. Here the crowd, overflowing the wire barriers immediately about the corner, packed solidly across the road, only opening to leave a couple of yards for each car as it passed and closing to look up the course for the next. One of the many who crossed and recrossed the track, advancing and retreating with the passage of each car, was a little more reckless or thoughtless than his fellows, being caught almost in the middle of the road.

Tracy had just dashed by in that wonderful fifth lap that redeemed the day's work of the Locomobile, and Shepard and Duray, turning the corner almost together, straightened in a hot fight for fourth place at the end of their sixth lap. Just beyond the railroad crossing a man appeared in the road ahead of the Hotchkiss car. Shepard swung out, but the left wheel struck the man, throwing him twenty feet into a crowd of women, one of whom was knocked down by the body. Death was instantaneous, the body being badly mangled and the bones broken; one foot was cut off and thrown high in the air. An ambulance was on the spot in a very short time, the doctors caring for some of the women, who were completely overcome. The man was identified by cards in his pocket as Kurt L. Gruner, of Passaic, N. J., a foreman in the Andrew McLean cotton mills in that city. The body was taken charge of by a deputy sheriff and the coroner was notified. Except for those in the immediate vicinity, the accident had little effect on the crowd; as soon as the ambulance was seen and the news bruited about, there was a wild rush from all directions, across the fields and along the course itself, for the scene of the disaster, persons crowding on the track and inviting another catastrophe.

Though not aspiring to the dignity and importance of a "Dip of Death," the turn at Krug's Corner was one of the danger spots of the course. The road leads down, straight and narrow, from Searington, two miles away, turning at right angles into the wider Jericho turnpike, which then runs on straight for the five miles to Jericho, the grandstand being three miles from Krug's. Two hundred yards east of the corner is the railway to Oyster Bay, the tracks being crossed at grade; then there lies ahead the longest straight of the whole course, where all counted on making speed. The road was good and the turn presented no special difficulties, but the place is known by name at least to thousands; it is near the Mineola station, and the crowd which gathered made it more than ordinarily dangerous.

For a distance of 200 yards each way, north and east from the corner, both sides of the road were lined with a fence of high wire netting capped by barbed wire. While this served a certain purpose in keeping the crowd off the course, it made matters worse than ever at each end of the fence, where the crowd overflowed around the boundaries, forcing its way in between the fences and packing the road in a dense mass for a long distance. As a car approached this mass opened, closing immediately un-



ROUNDING KRUG'S CORNER WAGNER MADE THE TURN AS THOUGH HE HELD HIS MONSTER THOROUGHLY IN HAND.

less the next car was within a hundred yards. The turn was hidden from the drivers until they were close on it; and when they were safely around and again on the high speed, they were unexpectedly confronted with a solid wall of people watching the turn from the best point of vantage and waiting until the car was on the straight before making way for it.

All through the afternoon and evening Krug's Corner was alive with the bustle and hustle of cars coming and going, and an endless throng of people on foot, this being one of the principal approaches to the course. As night fell and the warm, damp fog spread over the plain, all semblance of quiet fled, and the noise and bustle increased as the cars came in increasing numbers from all quarters. By 4 o'clock the roads and fields were packed and the cars worked their way slowly through the dense jam. The wire fences and the deputies made it evident that there would be but few desirable points of view, and these were taken up long before the first faint signs of dawn were visible, with the clouds low overhead and fog everywhere. It was 5.30 before there was light enough to read.

The police and deputies, present in large numbers, worked vigorously for a time in clearing the road within the fences, then the rolls of wire at the two crossroads and at Krug's piazzas were drawn across the openings and made fast. Expelled from the enclosure, the crowd readjusted itself outside the barriers and along the free road at each end.

For once in the twenty-four hours comparative quiet fell just before 6 o'clock, the attention of the crowd by a curious mental process being withdrawn from the immediate surroundings and centered on the start three miles away. Though it was certain that nothing could be seen or heard for at least a half hour, the crowd was for the time quiet and expectant. On the roof of a small building on the corner opposite the hotel a platform had been built for the telephone men, and from this at five minutes past 6 came the first announcement: "Hasn't any cars started on account of fog at grandstand." This was followed two minutes later by "First car will leave at 6.15." The minutes passed slowly until, a little after the quarter, came the announcement, "They're off, Le Blon first," sending a thrill of expectancy through the Thomas party. Then came quickly, "Heath at the mark," "Jenatzy's off," "Lancia starts," and the great race had begun.

A long wait, the crowd still rather quiet; at 6.32 the fog thickens to a light rain, but no one pays much attention to the weather. From the turn the road is visible for barely a hundred yards before the view is blocked by a black crowd of women and men. At 6:43 a cry comes from a man on the roof, "Car coming!" and the great crowd throbs as a single being under the strain of expectancy. Like the shutter of a camera the crowd opens to make way for a red car—"Le Blon," "Le Blon"; no, Jenatzy, the Mercedes, swings in short, within a foot of the big telegraph pole at the corner of the stable, a wide sweep, and it goes out of sight around the corner with a jump. A minute, another, again the shutter snaps and Lancia is seen, coming down the extreme right of the straight, his motor bellowing wildly, making a good turn.

Now come four in close order, Lawwell, Shepard, Nazzaro and Wagner, all taking the turn cautiously for the first time. Both Heath and Luttgen, the next in order, slowed down perceptibly. Clement came by at 6.56, making a slow turn, but skidding badly. Cagno, Tracy and Duray followed.

Haynes took the turn at a good speed, swung wide and skidded, his brakes jammed, and he was stalled in the ditch just around the turn, throwing the front of his car forward as she stopped, and barely missing the wire netting and the crowd behind. Only a few seconds after came Christie, making the turn at a good speed. He saw the Haynes car and steered to dodge it, when a stupid deputy sheriff with a cane blundered in front of him. With the man on one hand, the Haynes car on the other, and a dense mass of people right ahead, there was not time to think, but Christie acted, and the car swung back on its course in a short turn, barely missing the left side of the Haynes car. A cheer went up from the multitude, followed by shouts and groans for

HOW THE CURIOUS REPEATEDLY RISKED THEIR LIVES.

the delinquent deputy, who was adjured to get off the track and betake himself to the fields; the yellow flags went up and all crowded over in the effort to see. Christie soon resumed his course and after a little time Haynes, with his brakes out of order and only his high speed available, managed to start his car.

While the sympathies of the crowd were perhaps more with Tracy than with any other driver, the hopes and fears of all Krug's were centered in Le Blon, and when all but three out of the 17 starters had passed there was much anxiety as to his whereabouts. Removing his "skids" early in the morning, he had started with smooth tires, and now the rain was falling and the road growing more and more slippery every minute. Starting first at 6.15, he had been out nearly an hour with no word of bad or good. Shortly after the Haynes-Christie tangle had been straightened out and the Haynes car started anew, the red Thomas came through the crowd, making a good turn but at moderate speed, being greeted with cheers. Fabry followed, with a clean turn, and then all were accounted for but Dr. Weillschott; nothing was heard of him all day, and not until the race was over did the news of his accident reach this part of the course.

At 7.14 Jenatzy went by, followed closely by Lancia, Wagner being three minutes after the leader. Four minutes later came Shepard in fourth place, then Nazzaro, Luttgen, and Duray.

With the rain over and the sun trying to shine at intervals, the road was still in good condition and the turn was taken with less caution and at higher speeds. Barring bad accidents, it was a matter of speed between Lancia, Wagner, Duray and Jenatzy as to which should win. On the ninth lap Wagner had the lead again by a few seconds over Lancia, both running fast, with Tracy trying in vain to make up two lost rounds. When they came around again at 11.07 Tracy led Lancia by a minute, while Wagner was three minutes after Lancia, all of them at high speed. When Le Blon passed on his eighth lap he signaled for supplies and big wide-mouthed cans of gasoline and water were carried outside the gate and stored in the angle of the fence. When he came up again at 11.23 he stopped the car, there was a rush of men with cans, and in barely twenty seconds he was under way again with fresh water and gasoline.

The timing and scoring were close enough at this point, but three miles from the finish, to show clearly the winners, and when Wagner passed for the last time it was certain that he stood to win by a couple of minutes. Duray's time, about 13 minutes after Lancia, left the matter of second place in doubt, as it would evidently be very close. Though Jenatzy had preceded him, the great difference in starting times made the Mercedes good for nothing better than fourth place, at the best. At 11.25, Le Blon having been the last to pass, the yellow flag went up and the megaphone announced that the great race was over. Two minutes later Clement forced his car through the crowd that now overran the whole course, ran by the yellow flag, and drove down the last stretch, by good luck getting through without accident and taking fourth place. Cagno, on his ninth lap, followed close after him, but no other cars came up.

WHAT HAPPENED DURING THE WEIGHING

By E. L. FERGUSON.

UNLIKE the elimination weighing-in day of two weeks ago when the afternoon was the popular time, last Friday saw most of the contestants for the cup on hand in the morning. In fact Duray, Wagner, Heath, and Jenatzy had a preliminary canter on the scales preceding the official hour of 10 o'clock for starting the weighing.

Profiting by the experiences of two weeks ago, when it was a constant effort to keep the lookers-on off the edges of the scales, Chairman Thompson roped off the scale platform with a two foot margin all round, thus holding in check the tendency of crowding, again displayed by double the numbers of spectators on hand. He further showed his energy and at the same time set an example to the contestants, between the weighing of the first and second cars, by sweeping the scales of their accumulation of dirt, an example religiously followed during the rest of the day.

THE WINNING DARRACQ HAD NO DIFFICULTY IN MAKING THE WEIGHT.

NECESSARY TO SWEEP THE PLATFORM FOR THE HOTCHKISS.

With the scales calibrated and the certificate in the keeping of S. A. Miles, who did the weighing all through, the first car to be rolled on, emptied of oil, gasoline, and water, was Duray's De Dietrich, at 10.25 A. M., with magneto off, but with the extra tire supporting irons on a tool box. The weight was 2,217, 13 pounds over.

At 10.40 Jenatzy put his car on the stand with the magneto on, with tanks emptied and all permissible detachable parts removed. The weight proved to be 2,260 pounds. A duplicate magneto was offered to be weighed for a credited reduction, but this method of arriving at the net weight was refused, and Jenatzy retired to one side of the yard holding an animated conversation with himself on the subject of removing the magneto.

Five minutes later Heath pushed his car onto the platform with the magneto on and the extra tire supporting iron. It weighed one pound under the requirements, or 2,218 pounds, with emptied tanks and batteries removed. This supporting iron was laid on the car, it having been freed from its attaching parts, as Weigher-in Miles had stated that these supports need not be included in the net weight. Chairman Thompson, however, stated the Board had ruled the reverse.

Wagner's car was pushed on at 10.55, with magneto on, but with all removable parts off and tanks empty. The weight proved to be 2,229 pounds. This included a large metal tool box, at the rear of the machine, extending across from frame side to frame side. With this removed the weight was 2,200 pounds with the extra tire irons on.

During the time used for this removal of the tool box, Chairman Thompson had conferred with the technical committee of the Board, with the result that it was decided that tire irons must be included in the weight if used in the race.

The next on the scale was again Jenatzy at 11.13, with the magneto off and showing a weight of 2,218 pounds, which was reduced seven pounds by removing one of the floor boards. Jenatzy started in to prove that the scales were wrong, for the board could not weigh more than 4 or 4½ pounds. His argument fell flat, however, when the board was weighed on a small set of scales.

Pushing off the scales at 11.23 he again retired for more weight reduction, to give room to Haynes at 11.23, whose car weighed 2,201 pounds. During the weighing in of Haynes, Heath started his motor, being the first man ready for the reverse and brake test out on the road.

Immediately that Haynes left the platform, Duray pushed on for the second time and found he had only removed two pounds by letting out a small remaining quantity of gasoline, making his weight now 2,215 pounds. As this weight was without a magneto, it was suggested that he remove the extra tire supports, but as these were sweated in place, Chairman Thompson appointed A. L. Riker of the Technical Committee and George Dupuy of the weighing-in committee to estimate their weight, under the condition that whatever weight was allowed would be deducted with the understanding that should the car qualify then they were to be removed and weighed and this actual weight be deducted from the 2,215 pounds. The estimate was placed at 12½ pounds, and after some discussion among the sponsors for the car this chance was taken that the car would weigh out at 2,204 pounds or less.

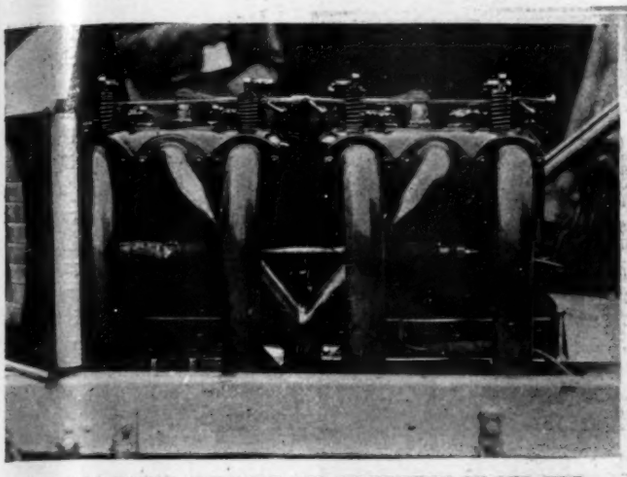
Tracy came next at 11.35 and one weighing only was necessary, as the scales showed 2,204 pounds wtih tanks empty and magneto removed.

Ten minutes later Jenatzy pushed his car on the stand for the third time, having removed part of one of the brakes, and thus came through at 2,204 pounds. Lancia, Luttgen, Shepard, Cagno and Weillschott reported before the noon adjournment.

Upon the resumption of weighing in the afternoon, it was found necessary to make an allowance for the soaking of the scale platform by the heavy rain. Though several cars had a little difficulty, all succeeded in making the weight. To provide for a possible emergency, a second Thomas car, driven by Roberts, passed the test of the scales.

JUDGED FROM THE MECHANICAL STANDPOINT

WHILE the third Vanderbilt Cup race has not added anything to the records for high average speeds in road racing, it is notable as making a new record in reliability of the competing machines. Of seventeen cars that started, all but four were running when the race was called, and most of these were running at rates that demonstrated a practically unlimited capacity for sustained high speed. The five cars that finished reached



DARRACQ MOTOR, EXHAUST AND INLET PIPES ON ONE SIDE.

the line within a space of less than fifteen minutes, and less than four minutes separated the first and second. Serious mechanical mishaps occurred to only two cars—the Hotchkiss No. 6 and the Fiat No. 16. A broken crankshaft put the Hotchkiss out of the race on the sixth round after it had run a consistent race in fourth place at the end of each completed round. The Fiat, driven by Dr. Weillschott, went over a bank in the town of Manhasset after a derangement of the steering gear had occurred. The drag link which connected the gearing at the foot of the steering post with the steering rod had been drilled with several holes for lightness, and it sheared off through the largest of these holes. The driver consequently lost control of the direction of the car, which he braked to a standstill and otherwise apparently without the least damage to the car.

With the exceptions of the Frayer-Miller air-cooled machine and the Christie, of the American team, there was really a remarkable uniformity of design in the competing machines. Though there were minor differences in the details, the familiar motor-in-front construction prevailed, with the chain-driven and the shaft-driven systems of transmission in about equal numbers. There were eight shaft-driven cars, nine chain-driven and one direct-driven—the Christie.

The winning car represented the greatest departure from conventional practice of any of the foreign machines. With a short wheelbase and narrow tread it looked small, comparatively, and occasioned much surprise when at the weighing-in it was found to be close to the weight limit. Its motor of 7 inches bore and almost 6 inches stroke turned up at a very high rotative speed. In the race the general handiness of the car made a strong impression on those who were figuring results, for the driver seemed to be able to hold it anywhere on the road.

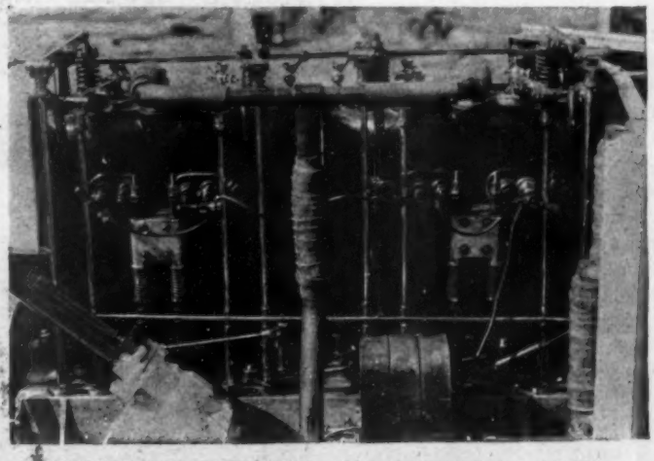
To the trained eye there was a surprising lack of finish about many of the foreign machines. Scrupulous care with the working surfaces had, no doubt, been taken, and for the rest the paint brush was about the extent of the finish. The Panhard and Fiat machines were notable exceptions. The latter were probably the most highly finished machines in the race. They gave the impression that a well-groomed horse gives, of attention to what are apparently non-essentials. In outline and finish the hand of the artist seemed to have aided that of the artisan to get a mechanical composition. An odd feature of their equipment was the carrying of spare tires horizontally at the back of the seats and the protection of the under side of the cylindrical gasoline tank by a fiber mat.

Weather conditions unquestionably changed the results of the race, for the rain-soaked and slippery course made the use of non-skid tires a necessity. For this reason the splendid Panhard machine No. 2, driven by Heath, did not figure in the race after the start. When equipped with non-skid tires the car was hopelessly over weight and it was weighed in and run with plain tires. It was never extended in the race and had completed only eight rounds when the race ended.

Tire troubles cut down the average rate of the Mercedes No. 3, driven by Jenatzy, and he was not able to do better than fifth at the finish. On one round one of his rear tires burst into small fragments, the steel detachable rim breaking into small pieces immediately afterward. A repair was made from spares carried on the car.

Duray in the De Dietrich and Lancia in the Fiat ran an extraordinarily close race, the former getting second place by only sixteen seconds from the French driver. Before the race great secrecy had been maintained at the De Dietrich camp for fear any outsider would get a close view of the racer.

While America had no share in the honors at the finish, she made a speed record for the course. In the only round in which Tracy with the Locomobile was not compelled to stop—the fifth round—he covered the circuit of 29.71 miles in 26:21, or at the rate of 67.65 miles an hour, which is equivalent to 99.22 feet a second. This round was made with three non-skid tires and one plain tire. Altogether the Locomobile made nine stops for tires and two stops for other reasons. One of the latter was made to take on water and gasoline and readjust a spring shackle which a bad bump in the road had turned, and the other to remove sand which interfered with the working of the throttle. The stops for tires cost this car about fifty minutes and put it hopelessly out of the winning. All through the race the car behaved magnificently and at different times Tracy passed Lancia,



IGNITION SIDE OF THE DARRACQ 110-HORSEPOWER ENGINE.

Wagner and Jenatzy in straight stretches when they were running wide open. When the race was called off Tracy was running on his ninth round at Manhasset and from there he slowed down to the Locomobile headquarters at Lakeville. The car was then in perfect condition, free from mechanical troubles and ready, if need be, to start all over again.

Le Blon in the Thomas also was outclassed by tire mishaps. In the first round he lost twenty minutes and afterward suffered many delays. Like Tracy, he started with plain tires, but was compelled to change to non-skid. The rounds in which he was free from tire troubles were made in good time, the fastest in 28:38. Le Blon finished in the lead of the American team, being on his tenth round when the race was called. His car was running finely and after the race was driven into the city to be exhibited in the showroom of the New York agent.

Both the Haynes and the Christie cars were touring cars and, of course, could not develop horsepower sufficient to put them in the winning class. They were both running well when the race ended.

Few structural defects were developed in the race. In this respect, however, the foreign cars had some advantage, as, without exception, the machines entered had been tried out in contests abroad.

The results of the race made it clear that to win a car must need a minimum of repairs either mechanical or to tires, or otherwise it is outclassed by the cars that have good tire luck and are built to run several hundred miles on end with stops only for supplies.

AT JERICHO CORNER.

The scene at Jericho corner on Saturday was watched by 10,000 people. There was excitement every minute, and thrills and cheers and all kinds of enthusiasm aplenty, and fog, too, and rain, and, worst of all, danger to the thousands of thoughtless, heedless, reckless, don't-care-a-cent, must-see-the-race individuals who were banked there in a struggling mass, occupying every vantage point.

Walking down the course a quarter of a mile toward the grandstand and looking back toward Jericho corner, at the bank of humanity gathered there, it seemed unavoidable that the driver of some thundering racer must lose his nerve and dash wildly into the crowd, but no accident whatever happened at Jericho, thanks to good fortune and one hard-working policeman and a squad of special officers. The contestants realized the danger, and Lancia, on his very first round, waved the pressing spectators back with his left hand as he took the turn short at a mile-a-minute pace, steering with his right hand only on the wheel.

CHRISTIE AT FULL SPEED ON THE JERICHO TURNPIKE.

HAYNES ROUNDING THE FAMOUS HAIRPIN AT OLD WESTBURY.

TRACY MAKING TURN INTO NORTH HEMPSTEAD TURNPIKE.

JENATZY FLYING UP THE MANHASSET HILL

On the first circuit every car passed through Jericho in its order of starting from the grandstand, but on the second round Jenatzy, Lancia, Wagner, Shepard and Nazzaro passed in the order named, and Heath, who started second, did not show up until Jenatzy was fifteen minutes away on the road to East Norwich and Bull's Head. Two minutes after Heath, Tracy passed, and he received the first really enthusiastic greeting of the day, with tardy Le Blon a good second when he arrived ten seconds before No. 14, the moderately powered Haynes car.

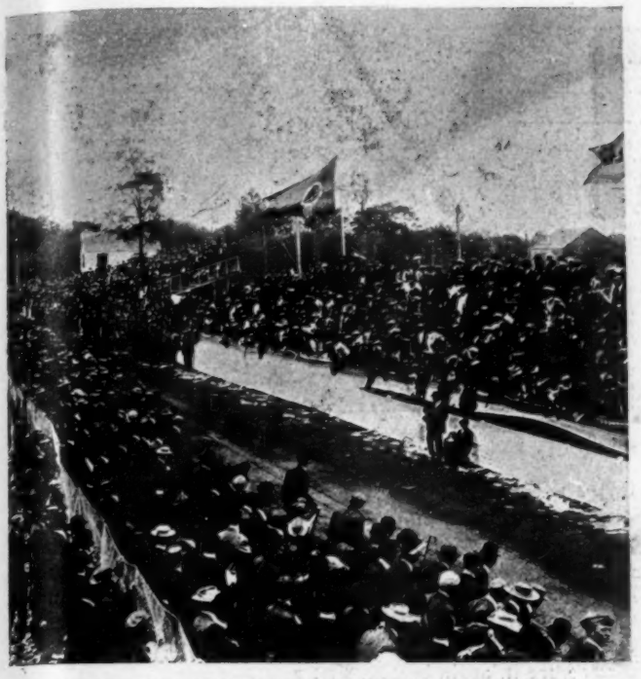
One of the most exciting moments of the day was when Wagner, Shepard, Nazarro and Lawwell came down from Westbury at terrific speed, with hardly a length between them, and bunched at the corner. Wagner had a little the best of it, however, and broke away by the time they had reached the Diamond tire depot.

On the fourth round Haynes stopped at the Diamond tire station for a new rear tire, and two minutes afterward Tracy came up for the same purpose. Haynes, looking back, waved his hand at Tracy and puffed at a cigarette. In a few minutes both were driving madly up toward East Norwich.

MR. CURRY SUGGESTS.

Duncan Curry in "New York American."

If the Vanderbilt Cup officials had only thought to spread out the unsold copies of little Mr. Schwarzkopf's alleged *Automobile Daily* on Saturday, there would have been no need for the cars to use non-skid tires, as the issue was dry enough to soak up all the moisture along the course. My! but it was a frost, yet I hear he has the effrontery to talk of repeating the experiment on some misguided manufacturers during show week



EVEN BEFORE THE FINISH THEY INVADED THE COURSE.

AND WHAT OF THE FUTURE?

Before the third Vanderbilt Cup race had been completed, Chairman Thompson and his associates had practically reached the opinion that it would be folly to hold another race over a course that could not be properly guarded. Eager to see all that could be seen, venturing far into the road with a blind stupidity that was incomprehensible, the thousands made a pathway of danger, not only for themselves but for those who steered the powerful road craft that threatened again and again to leave trails of death in their wake.

THE IGNORED SIGN.

In the subsequent discussions that took place at the Garden City Hotel the deduction was that the only hope for a 1907 event would be in securing a course absolutely controlled by the management of the race. Some of the comments will be read with much interest, and they are herewith given:

Jefferson De Mont Thompson, Chairman of the 1906 A. A. A. Racing Board and of the Cup Commission: "This idea of a privately owned course is the only solution to make possible the continuing of automobile road racing in this country. The project can be carried to a successful arrangement, and I shall use my best efforts to bring something of the sort about."

Robert Lee Morrell, ex-Chairman of the 1905 Racing Board and of the Cup Commission: "The possibility of securing troops to guard the course in this country is hardly worth considering. Therefore, if road racing is to continue, it must be over a privately owned course, and the securing of such a course should not be very difficult.

A. R. Pardington, ex-Chairman 1904 A. A. A. Racing Board and of the Cup Commission: "No one would seriously consider the holding of another race under the conditions that existed on Saturday last. A privately owned course is feasible for the particular reason that it would unquestionably prove profitable."

Henry B. Joy, president of the Packard Motor Car Company: "Manufacturers would lend a substantial support to the building of a course whereon they would have opportunity not only of participating in speed contests, but also for the more practical purpose of testing their touring cars."

S. T. Davis, Jr., president of the Locomobile Company of America: "I do not think you could induce drivers to compete again under the conditions of last Saturday. A privately owned course seems to be the only answer in this country."

John Farson, president of the American Automobile Association: "Road racing will continue popular for several years to come, but these events must be held over a properly guarded course, and this can be secured only through private ownership."

At the October meeting of the A. A. A. Board of Directors, held at the rooms of the Automobile Club of America, New York City, on Monday afternoon, a resolution was passed empowering President Farson to name a special committee to look into the matter of securing a privately owned course. William K. Vanderbilt, Jr., Jefferson De Mont Thompson and A. R. Pardington were designated as a committee of three to examine the various projects looking forward to the construction of a special speed course. It will be remembered that the A. A. A. placed itself on record last winter as favoring the construction of special courses for road competitions and time trials.

Three locations have already been suggested: one on Long Island, another near Tuxedo, N. Y., a third at Lakewood, N. J., with a fourth in the Berkshire Hills of Massachusetts. It is confidently expected that at least one of the several projects will result in the building of a macadamized track of between twenty and thirty miles in circumference. The project appears this time to have the necessary kind of support.

THE MOB THAT CAME AFTER THE FINISH.

WEILSCHOTT'S DISABLED FIAT AFTER HIS ACCIDENT.

HOW IT LOOKED BEHIND THE GRANDSTAND.

FRENCH COMMENT ON THE ELIMINATION.

PARIS, Sept. 30.—Most of the Paris newspapers commented unfavorably on the American Elimination Trial, declaring that the average speed was only fit for a touring competition and inferring that two of the cars had to be qualified for the final without finishing or being in a position to finish the race. "Out of thirteen cars," says *Les Sports*, "three only were capable of covering 300 miles in less than seven hours. This day is far from being a triumph for American automobile construction."

Writing in *L'Auto*, Charles Faroux examines the situation with impartiality and states: "Tracy in his Locomobile had an average of 88 k. 600 for the 483 kilometers of the circuit, his fastest round being done at about 92 kilometers an hour. This is not the fast speed attained on the Sarthe or the Ardennes Circuits, but can we equitably compare races on such different roads as the two just mentioned and the Vanderbilt Cup course of 1906?

"Can we, then, compare Tracy's performance with Hemery's average of nearly 100 kilometers an hour over a slightly shorter distance? No, for the 1906 course is slower than that of 1905. I have been over the two and am convinced. To make a comparison we must go back two years. Heath won, his time being one minute slower than that of Tracy this year. The practical results are Heath's Panhard of 1904, followed close to the winning post by Albert Clément's Bayard, and Joe Tracy's Locomobile, have made, with a two years' interval, exactly the same performance. The 1904 Panhard racers were remarkably fast machines, which won in the Ardennes and on the Vanderbilt course. The 1906 Locomobile is about equal to the 1904 Panhard. It should be noted further that Heath's machine had been got into perfect racing trim as the natural consequence of the two previous racers and four months spent on the road. Tracy's Locomobile only left the factory eleven days before the race. In an international contest the United States have never been beaten except by France. Go back to the 1904 and 1905 Vanderbilt races. Each time an American machine has beaten *all* the German and *all* the Italian machines. In 1904 Lytle, on a Pope-Toledo, finished third, beaten only by a Panhard and Bayard-Clément, but preceding Mercedes and Fiat. When the race was stopped the four American cars were still running and the first of them was Schmidt's Packard. In 1905 Tracy's Locomobile finished third, with only two French cars before it, again beating Fiat and Mercedes. The fact is, on American soil the American industry has always beaten Germany and Italy.

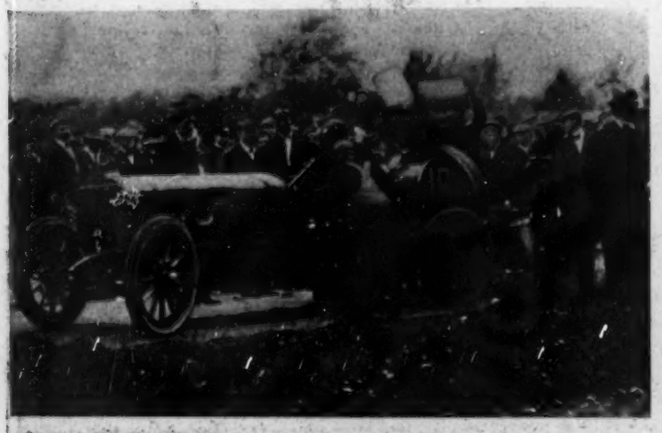
"There is another proof of American progress in the Herkomer Cup contest this year. Eighty cars started, including one American. Fourteen finished without penalization, and among them was the American. Twenty-one German machines started; five only finished without penalization.

"In 1902 and 1903, I am speaking from experience, the Yankees only produced horrors. I had a 1902 American car with which I could never travel from the Waldorf to Central Park—about two kilometers—without breakdowns. That was four years ago. This year a Cadillac brilliantly won first place in the Scottish Reliability Trials, a serious contest if you like, including speed, fuel consumption, starting and brake tests. The Cadillac beat the best English maker, and, it must be confessed, several Continental firms.

"Another fact. For three months the White Company, builder of an all-American steamer, has offered to match one of its 20-horsepower models against a six-cylinder Napier on a hill-climbing contest. S. F. Edge rants, writes, argues, calls the heavens as his witness—but does not take up the challenge.

"I am defending the Americans, you say. No; I am only giving facts."

Charles Faroux is one of the best known of French automobile writers, and is credited with looking things squarely in the face and without bias.



REPLENISHING ONE OF THE MONSTER CRAFT.

BEFORE THE COMING OF THE DAWN.

LETTERS INTERESTING AND INSTRUCTIVE

Larger Bore Than Stroke.

Editor THE AUTOMOBILE:

[424.]—I do not know the explanation of the modern tendency toward the use of a larger bore than stroke in an automobile engine, and if it is not too much to ask, I would like to see the theory of this matter set forth in the columns of your interesting question page. Why should not the longer stroke be better, since it permits the highest piston speed with the least number of revolutions, thus affording a maximum power output with a minimum rotational speed and the least possible vibration? H. M. RICHARDSON.

Uniontown, Pa.

The reason of the modern tendency in the direction of "square" cylinders—in which the stroke measures the same as the bore—lies in the fact that this construction affords the greatest power with the least weight, besides having some beneficial effect upon the efficiency. Consider, for instance, the case of two cylinders, one five by eight inches, the latter figure being the stroke, and the other ten by eight inches. Assume that for this cylinder the maximum piston speed permissible, because of the strength of the materials that it is practicable to use, lubrication problems, etc., is one thousand feet a minute. This figures, with the eight-inch stroke, seven hundred and fifty revolutions to the minute. With a design following present standard practice in all essential respects, the horsepower developed in the five by eight cylinder would be about eight. The ten by eight cylinder would have four times the cubic contents, because a ten-inch circle has four times the area of a five-inch circle and the stroke is the same in both cases, so it would develop at least 32 horsepower—possibly even more—with a weight nowhere near four times as much, because of the fact that the wall area is only about doubled. This all comes from the simple geometrical facts that areas are proportionate to the squares of the diameters, while circumferences are directly proportionate, always increasing in a constant ratio. It must be borne in mind that length of stroke is a matter that refers back to the crankshaft rather than to the bore, and that it does not shorten or lengthen the stroke to increase or diminish the bore.

Ball Bearings for Crankshafts.

Editor THE AUTOMOBILE:

[425.]—What is your opinion in regard to the merits of ball bearings for the crankshafts of gasoline engines? I note that these bearings are used on some of the highest grade cars made, but nevertheless find them very positively condemned by the experts of some of the foremost manufacturing concerns. They argue, very plausibly, that the severe and sudden stresses normally encountered by this part of the mechanism are too great for ball bearings to sustain without breakage. JOHN BUCKLE.

Madison, Wis.

The use of ball bearings on crankshafts is chiefly a question of expense and of proportions. A ball bearing can be made large enough to stand any stress, and, if there is room in the mechanism for one of the required size, it may be considered in every way superior to any other bearing that can be used for the same purpose, provided it is a ball bearing of the modern annular type, of high quality. A poor ball bearing is worse than useless under such exacting service. The advantages of ball bearings are the permanent service they give, without attention or adjustment; the very great reduction of friction, especially at starting; the small lateral space they occupy, and facility with which they can be installed without elaborate assembling or fitting. Their disadvantages are their great circumferential size; their high cost, due to the quality of material and the carefulness of the workmanship required in their manufacture; and their extreme susceptibility to rust unless properly lubricated. Broken balls in an annular bearing are practically unknown except in cases where the bearings used are too small for the duty expected of them. It seems probable that in time ball bearings will be used in many instances on connecting rod big ends as well as on crankshafts.

Graphite as a Lubricant for Ball Bearings.

Editor THE AUTOMOBILE:

[426.]—We have noticed a communication in a recent issue of THE AUTOMOBILE from A. M. Brown, entitled "How It Appears to a User of Graphite." We cordially subscribe to everything that Mr. Brown has said in favor of graphite as a lubricant in all those cases where the surfaces are more or less imperfect, as in plain bearings or where the surfaces are of considerable extent, as may be the case in certain forms of roller bearings.

Graphite, however, is not a suitable lubricant for ball bearings. For these a natural grease is necessary. Mr. Brown finds his chief reason for advocating graphite in ball bearings in the leakage of lighter lubricants out of such bearings. The proper remedy for that is to so arrange the mountings that such leakage will not take place.

We are manufacturers of ball bearings, and thereforre have no interest whatever in advocating one method of lubrication as against another, or one lubricant as against another, except in so far as such lubricant will not act properly in the ball bearings. When we say absolutely that a graphite is not a suitable lubricant for a ball bearing, we base this on a very considerable experience. Mixtures of graphite and other lubricants may be used in ball bearings by reason of the fact that the other lubricants in the mixture are useful. Nevertheless, that is why care must be exercised that the mixture is not a thick one that might tend to clog the entire bearing. THE HESS-BRIGHT M'F'G CO.

Philadelphia, Pa.

The Gearless Car.

Editor THE AUTOMOBILE:

[427.]—Are the present tendencies in automobile construction likely to bring about the building of really practicable gearless cars? I cannot see why the recent runs on the high gear, made by the Oldsmobile in this country and the Napier abroad, do not indicate this, but still I hear it insisted strongly that the gearless car is an utter impossibility. Are the technical difficulties really so great that anyone can say positively that they cannot be overcome?

Decatur, Ill. JOHN OVERHISER.

It would be hard to make a prophesy on this subject, with the assurance that it would not be contradicted by facts that may develop in the very near future. To run a car without gears is largely a matter of overpowering; but, even when so overpowered, is not the argument good that gears afford a means of getting out of heavy running that could not be coped with successfully otherwise? Also, there is the matter of reversing to be considered, and until a self-starting and reversing gasoline engine is developed, gears for this purpose will be unavoidable. Flexibility, too, is secured in most engines at a sacrifice of torque at low speeds, making the gears less easy to avoid than might appear.

A Comparison of Dangers.

Editor THE AUTOMOBILE:

[428.]—In the description of a recent accident on the Vanderbilt Cup Course, it was asserted as a positive fact by eye witnesses that one of the occupants of the car that was smashed was thrown through the air a distance of sixty-three yards—one hundred and eighty-nine feet—and yet escaped with only minor injuries. Upon first consideration, this seems almost an impossibility, in view of the frequent fatalities that follow upon less spectacular but often more serious flights, but it has since occurred to me that the great distance to which the victim was thrown in the case cited was the very thing that preserved his life, which he might have lost had he hit something sooner. Is this sound reasoning? JOS. MILROY.

Westbury, N. Y.

Your reasoning is correct, and unquestionably the conditions you dwell upon were the factors of safety, though they might at first, as you say, appear factors of danger. It is a natural law that an object—whether it be the body of a man or anything else—projected through the air loses in velocity in proportion to the distance traveled, and the time taken for the aerial transit is exactly that which would be taken by any similar body to fall to the ground from an equal height. In other words, no matter how rapid a lateral movement be imparted to the body, this will only affect the point at which it falls and not the time it takes

to fall. Therefore, if a man driving a racing car over a horizontal surface is suddenly by an accident thrown to a point several hundred feet distant from the point where the accident occurs, but is not thrown to a maximum height greater than, say ten feet from the ground, the impact upon striking the ground will be only the same as upon falling directly down from the same height. The real danger is not in being thrown to a great distance, but in being thrown to a great height or in striking something before the energy that throws the body to the great distance is expended. It naturally would be argued by the victim that sliding along the ground, especially if it were rough, would account for some minor injuries after the moment of landing, and this is true, but does not compare in seriousness with the other condition. If you ever are thrown hard enough to go through the air a given distance in a horizontal direction it will be better for you if you have the good fortune to go for a given distance rather than to be stopped by some obstacle nearer at hand.

Explaining the German Auto Tax.

Editor THE AUTOMOBILE:

[429.]—As a considerable amount of uncertainty exists abroad regarding the taxation of automobiles entering Germany and as to the term of duration of the tax-passes (permits) which have to be taken out at the frontier customs stations, we take the liberty of forwarding the enclosed notice for your information. We should esteem it a favor if you could kindly publish it in your columns.

GERMAN IMPERIAL AUTOMOBILE CLUB.

Berlin, Germany.

The automobile tax law which came in force on the first of July of the present year in Germany stipulates that permits (tax cards) must be taken out for automobiles of owners living abroad. The taxes to be paid are as follows: For a sojourn in Germany not exceeding five days, 15 M, and for a sojourn lasting from five to thirty days, 40 M. for each automobile. These permits are issued on the payment of the dues at the German frontier custom houses.

In regard to the duration of such permits erroneous views prevail abroad, and we should especially like to point out that paragraph 110 of the law states that the five or thirty days for which the permits are valid need not necessarily be consecutive days; the permits therefore should be produced on every occasion that the frontier is crossed and laid before the customs officials to allow of the entry or departure from the country being exactly noted. Such notices should contain the marks of recognition of the automobile (letter and number) and the number of days passed in the country.

Every day, if only partially spent in the country, is reckoned as a full day. It is not necessary that the frontier station at which the entry is made should always be the same one. Foreigners who are treated at the frontier customs stations in contradiction to the above regulations should always refer to paragraph 110 of the regulations.

NOTE.—Recent cable advices state that as a result of representations made by the German Imperial Automobile Club, Chancellor Von Buelow has directed the customs administration to lighten the restrictions placed upon foreign automobilists touring Germany.

Non-Explosive Gasoline.

Editor THE AUTOMOBILE:

[430.]—There is a concern marketing a liquid fuel of their own compounding, or else some chemical to be added to gasoline, which they claim results in "non-explosive gasoline," and call very much safer than the ordinary kind. I cannot understand why anything of this sort is possible, because the explosive qualities, as I understand it, of gasoline are what cause it to give power in an engine.

Philadelphia, Pa. DR. C. A. MOORE.

It is, of course, impossible for there to be such a thing as non-explosive gasoline, suitable for generating power in an internal-combustion engine. The phrase probably is merely an advertising slogan, intended to imply a greater safety than is usual, and not intended to be exactly descriptive of the product.

Automobile Touring Conditions of Western Cuba.

Editor THE AUTOMOBILE:

[431.]—Can you or any of your readers give information about automobile conditions in Cuba, and taking a runabout there? Are the roads such as to give pleasure in touring, outside of the region around Havana? It is to be presumed that the present "revolution," which the inhabitants of small Latin republics like to indulge in, will be settled before next winter. Particulars from one who has had experience will be highly appreciated.

MARCUS H. ROGERS.

Springfield, Mass.

Editor THE AUTOMOBILE:

[432.]—In reply to Marcus H. Rogers, and his want of information in regard to Cuban roads and touring conditions, outside of the region around Havana, I am not able to supply any information as regards the eastern part of the island, but I believe that the western part of the island will be found interesting to an automobilist. From Havana to San Christobal, a distance of some sixty miles, one of the finest roads imaginable will be found, which was constructed by the Spaniards, and has been kept in repair and somewhat improved by the Cuban government. Its only drawback is its narrowness. One of the finest rides the writer has ever had was over that road one night two years ago in February, with the temperature at about 70 degrees on a beautiful moonlight night. The ride was from Havana to Mariel and return, some eighty miles, and the host was the Hon. Horatio Reubens, owner of the recently finished magnificent castle, built for Mr. Reubens on the heights overlooking the town and bay of Mariel. A branch road of splendid construction leaves Guanjay, and runs some sixteen miles to the town of Mariel. The town of Pinar del Rio, the most important of the western towns, has very good streets, and has considerable roads in the neighborhood, built largely by the town and wealthy tobacco planters. The road from Havana to Vento Springs is also a favorite ride with Havana automobilists, and which, I note, Secretary Taft recently took a ride to. The Cuban government had appropriated, I believe, $6,000,000 for the further construction of roads, and one of the proejcts was a boulevard or calzado from the terminal of the present Havana San Christobal boulevard to Pinar del Rio, some sixty miles further west. Of course, in Havana the streets are narrow, and the favorite drives are the Prado and Malecon shore drive.

New York City. W. J. MORGAN.

Changing the Method of Stopping.

Editor THE AUTOMOBILE:

[433.]—I have a powerful German car that is arranged to be stopped by cutting off the gasoline at the atomizing nozzle of the carbureter, thus leaving the cylinders full of pure air. This system I find objectionable, since every time I start I must do considerable cranking to get mixture into the cylinders. I propose to change this system so that stopping will be effected by cutting off the ignition, thus leaving the cylinders full of mixture. Although the car cannot be very readily made self-starting, because it has make-and-break ignition, by stopping with the cylinders full of mixture I imagine less cranking will be required. Am I right?

WILLIAM GRESHAM.

Binghamton, N. Y.

There is no reason why the changes you make should be objectionable, though if the carbureter is all right there ought not to be a great deal of cranking necessary to supplant the pure air with ignitable mixture. However, most cars do stop on the ignition, rather than by shutting off of the fuel, so by adopting this plan you will only be equipping the car as the majority of them are.

ITALIAN FACTS FROM A GERMAN SOURCE.

According to Consul-General Richard Guenther, of Frankfort, the German consul in Genoa reports that the manufacture and exportation of Italian automobiles are rapidly increasing.

Numerous factories have of late been established in northern Italy, especially in Turin and Milan. Two were recently erected in the province of Liguria, but are not yet in operation. The imports of automobiles at Genoa during 1905 were 118, of which 98 came from the United States, 14 from France, 2 from England and 3 from Germany. In the same year 83 automobiles were exported from Genoa; of these 54 went to the United States and 11 to Argentina. It is only a question of time, adds the Genoa consul, until the Italian motor industries will be manufacturing automobiles for freight and general transportation service.

CLUBS PREPARING FOR WINTER SEASON

Splendid Growth of the Cleveland Automobile Club.

CLEVELAND, Oct. 8.—The Cleveland Automobile Club has enjoyed a wonderful growth in the past seven months and is now easily the largest automobile organization between New York and Chicago. The annual meeting of the club was held in the rooms at the Hollenden Hotel a few evenings ago, and it was shown that in the last few months the membership has been more than doubled. The reports showed that great progress has been made by the organization and that the members are enthusiastically supporting the officers. A great deal of work has been mapped out for next year and much of this will be in the hands of Secretary Asa Goddard, who has shown himself to be an energetic and resourceful official. The club will extend its guide board work, which was started this year to cover all the important routes in northern Ohio, and an effort will be made to induce the State Association to co-operate in this work, as well as in the work of preparing better guide-books.

The efforts of the club to discourage scorching by writing letters to those who were reported as exceeding the speed limits and in some cases securing the prosecution of reckless drivers has been productive of good results. Very few of the club members have been found guilty of fast driving. The club aims to enter into a progressive plan of co-operating with the city authorities in this matter another season, and, if necessary, will eliminate from its membership any who disregard the laws.

At the business meeting the following officers were elected: Fred R. White, F. N. Benclaire and K. C. Chisholm, trustees for the three year term. Charles B. Shanks was chosen to fill the vacancy made by the resignation of George C. Bradley as a trustee. A banquet followed the meeting.

While the matter was not formally discussed at the meeting, there is a stong sentiment among many of the members of the club in favor of securing better club accommodations. While the rooms in the Hollenden Hotel are centrally located and very convenient for tourists and traveling men, there is a desire among many of the members to have a clubhouse where there could be a garage, gymnasium, shower baths and rooms for the accommodation of out-of-town members. The dues at present are very light; this, in a measure, has been accountable for the rapid growth, but it is believed that if superior accommodations were offered, there would be no objection to an increase in annual dues.

Preparation for the Election Day Meet at Newark.

NEWARK, Oct. 8.—Entry blanks are being sent out for the fifth race meet of the New Jersey Automobile and Motor Club, to be held on election day at Weequahic Park, Waverly. There will be a card of seven events. The race committee, instead of offering medals as second prizes, will give two silver cups in each event. Three prizes will be awarded in the 25-mile race, the last award being a gold stop watch.

The first event on the program will be a 5-mile race for cars costing from $750 to $1,500. The second race will be also at five miles for touring cars only, each car carrying four passengers, weighing not less than 125 pounds each, the cars costing from $1,200 to $4,000. The third event will be a 7-mile handicap for runabouts and no limit as to cost. The fourth event will be 10-mile free-for-all, while the fifth will be for cars costing from $2,000 to $5,000, a 5-mile course. The sixth event, the 25-mile race, will be followed by a club handicap for the $100 cup offered by the association. Cars finishing first and second in the first six races will qualify for this event. The owner of the car winning the race the greatest number of times in the five meets will be entitled to the trophy. The races will be for gasoline cars only, and no objection will be made to the removal of lamps, mudguards and mufflers.

Montreal Autoists Award Prizes to Roadmakers Nov. 5.

MONTREAL, CAN., Oct. 8.—The Automobile Club of Canada announces that the awarding of the prizes for the best kept sections of roadway on the Island of Montreal will be made November 5. This is in accordance with a circular issued by the club some time ago offering to landowners and farmers four cash prizes, aggregating the sum of $200, for the best kept section of road between Bout de l'Ile and Senneville on the north side of the island, and between St. Anne and Beaconsfield, on the south side. While this move on the part of the local club has met with the approval of a large number of the land owners who have already signified their intention of entering the competition, it has been decided to postpone the closing date for entering the competition for a short time in order to allow those who have not as yet sent in their names and addresses to get their sections in good shape before the inspection of the roads takes place, and thus may be permitted to participate in the drawing for the prizes.

York, Pa., Entertains State Officials.

YORK, PA., Oct. 1.—Pennsylvania's Motor Federation has sounded the keynote of the "good roads" proposition throughout the Keystone state, and on all sides motorists are being encouraged for the work that they have undertaken in connection with the tour of the state officials over the proposed state road from Philadelphia to Pittsburg. The state party, which left Philadelphia on Saturday morning, arrived in York early in the evening. Prominent among the state party were: Joseph W. Hunter, State Highway Commissioner; Senators George Roberts and Charles A. Ambler; G. J. Gundguiger, Mark Ellsworth, H. E. Walls, and R. C. Clapp, well known in Philadelphia auto circles.

The York Automobile Association entertained the members of the party, and afterward there was a banquet at the Lafayette Club, tendered by Senator E. K. McConkey.

A. C. of Pittsburg Will Hold Automobile Show.

PITTSBURG, PA., Oct. 8.—It has been practically decided by the Automobile Club of Pittsburg to hold an automobile show in January, as soon after the New York show as possible. Committees will be appointed shortly to make the necessary arangements. Two places are being considered, Luna Park, which is located near the Grant boulevard, the best automobile speedway in Pittsburg, and the Exposition building at the Point. Luna Park will afford about 22,000 square feet of space. The show will be the first to be held in Pittsburg, and is looked forward to with much interest.

Another run of the club to Butler will probably be held Saturday, October 13. Many outside automobilists will be invited to participate in the run, which will not be a speed event, but purely a social affair.

Omaha's Club to Prosecute Stone Throwers.

OMAHA, NEB., Oct. 6.—The Omaha Automobile Club has offered a reward of $25 for information leading to the conviction of anyone throwing stones or other missiles at passing automobiles, promising that information received will be strictly confidential and no names used. Auto owners are asked to report to the club the location of such annoyances. The attacks on passing automobiles by malicious men and boys have become very frequent of late, and in one instance the driver was struck on the head with a stone and stunned to such an extent that he lost control of his car. By some people the responsibility for this condition is laid on two or three reckless motorists who defy all local regulations. These men speed along Military avenue, in the

edge of the city, at a terrific rate, endangering the lives of pedestrians and people in carriages. About a month ago a crowd of citizens gathered secretly and threw several dozen eggs into the car of one of these speeders. It is thought that the stone throwers got their idea from this.

A motor cycle club is proposed for Omaha and Council Bluffs and a meeting is to be called soon for its organization. After a half day's motorcycle races recently at one of the local parks, an event which proved very successful, a canvass was made of the two cities, with the result that thirty-two owners of these machines were found, a large number to start a club. A big racing meet is planned for next spring at Omaha.

Rochester Automobile Club Hill Climb, October 13.

ROCHESTER, N. Y., Oct. 8.—Dugway hill will be the scene of the hill climb of the Rochester Automobile Club, Saturday, October 13. The event is open only to stock touring cars, and no changes of gearing to suit grade will be permitted. Classification of cars will be made according to horsepower and not on a cost basis, as has been customary, and a telephone system for starting the cars is being installed.

At the last club meeting the name of Mrs. Frederick F. Thompson was proposed for membership. There had been considerable discussion about admitting a woman to membership, but a rigid search of the constitution failed to reveal a prohibiting clause, and Mrs. Thompson was elected, thereby enjoying the distinction of being the first lady member.

A party of a dozen members of the club attended Vanderbilt Cup race on Long Island on October 6.

North Carolina Club Stands by Its Secretary.

WILMINGTON, N. C., Oct. 6.—The Wilmington Automobile Club is very much interested in a lawsuit which has been instituted against its secretary, Walter Sprunt. Last spring he had a collision with a drunken countryman on a bicycle, while going at a moderate rate of speed at the extreme right of the roadway, and the latter is claiming damages. As the claim appears to be an unjust one in every way, the club is preparing to defend the case, as a decision in favor of the plaintiff would be prejudicial to the interests of automobiling, as it would establish a precedent. It is expected that the club will become affiliated with the A. A. A. at an early date.

CLUB DOINGS IN GENERAL.

CHICAGO.—At the recent meeting of the Chicago Motor Club at the New Southern Hotel several of the standing committees were appointed. The chairman of the membership committee is F. C. Donald, a veteran automobilist, prominent in the organization of the A. A. A., and President W. H. Arthur was delegated to the chairmanship of the laws and legislation committee.

SAN FRANCISCO.—Chairman A. B. Watson, of the runs and tours committee of the Automobile Club of California, is making plans for a non-stop run from this city to Del Monte, to take place October 19. A cup has been offered for a run to Los Angeles, but the advent of the rainy season makes it impractical to attempt a run to that city at this season of the year. It is probable the Los Angeles run will take place next summer.

MILWAUKEE, WIS.—At a meeting of the Milwaukee Automobile Club, held last week, the following were placed in nomination for the Board of Directors, five of whom are to be chosen at the next meeting: Dr. Lewis Sherman, Dr. R. J. Healey, Dr. Ralph Elmergreen, E. F. Niedecken, C. S. Drake, Chris Scholtka, J. E. Farber, E. H. Warnke and the Rev. J. F. Szukalski. Mayor Becker tendered his resignation as president and director of the club, but will retain his membership and active interest in the organization which he has done so much to build up.

BESSEMER, ALA.—Plans are on foot for the purchase of a site and the erection of a country clubhouse for the Jefferson County Automobile Club, whose headquarters are here. W. T. Kennedy, a prominent member of the club, has the matter of the site in charge and has secured from the West Lake Land Company a satisfactory site near the lake, where the boating and fishing are excellent, and the approaches are all that can be desired. The matter will be officially acted upon at the next meeting of the club.

PREPARING FOR THE 1907 BOSTON SHOW.

Boston will have its fifth annual automobile and power boat show on March 9 to 16, inclusive, 1907, and the general manager, Chester I. Campbell, has issued space application blanks and the rules and regulations governing the exposition, bound up in a neat pamphlet together with floor plans, space price lists, lists of exhibitors and cars at the last show, and so on. The show is held under the auspices of the Boston Automobile Dealers' Association, Incorporated. The Mechanics' Building and Horticultural Hall will both be occupied, giving a total floor area of 105,000 square feet.

THE AUTOMOBILE CALENDAR.

AMERICAN.

Shows.

Dec. 1-8.....—Seventh Annual Automobile Show of the Automobile Club of America, Grand Central Palace, New York City, under the patronage of the American Motor Car Manufacturers' Association.

Jan. 12-19.....—Annual Automobile Show of the Association of Licensed Automobile Manufacturers, Madison Square Garden, New York City.

Feb. 2-9.....—Chicago Automobile Show, Coliseum and First Regiment Armory. S. A. Miles, manager, 7 E. 42d Street, New York City.

Feb. 18-23.....—Fifth Annual Automobile Show, Buffalo, Convention Hall. D. H. Lewis, Manager, Teck Building, Buffalo.

March 9-16.....—Boston Automobile Show, Mechanics' Hall and Horticultural Hall, Boston Automobile Dealers' Association. Chester I. Campbell, manager, 5 Park Square, Boston.

April 6-13.....—Montreal, Canada, Second International Automobile and Sportsman's Exhibition. R. M. Jaffray, manager, 309 W. Notre Dame Street.

Tours.

Oct. 20.....—Philadelphia, Pa., Cross Country Run of the Philadelphia Automobile Club.

Race Meets and Hill Climbs.

Oct. 13.....—Chicago, Lake County Field Day, Libertyville Track. Automobile Races for Benefit of Charitable Institutions.

Nov. 6.....—Newark, N. J., Weequahic Park, Waverley, Election Day Race Meet of the New Jersey Automobile and Motor Club.

Nov. 29.....—Riverside, Cal., Thanksgiving Day Hill Climb, Box Springs Grade Hill.

Jan. 22-26.....—Ormond-Daytona (Florida) International Race Meet, Florida East Coast Automobile Association.

FOREIGN.

Nov. 1.....—New Zealand International Exhibition opens at Christchurch.

Nov. 1-16.....—Berlin (Germany) Automobile Exhibition.

Nov. 15-24.....—London Olympia Motor Show.

Nov. 23-Dec. 1.—London Stanley Show, Agricultural Hall.

Dec. 7-23.....—Paris, Ninth Annual Salon d'Automobiles, Grand Palais.

Dec. 15.....—Calcutta, India, Exhibition of Automobiles, etc., Automobile Association of Bengal.

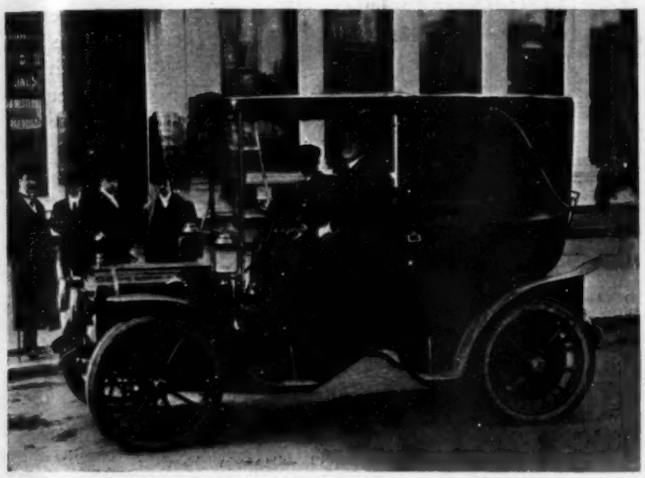
Race Meets, Hill-Climbs, etc.

Oct. 23.....—Gaillon (France) Hill Climb.

A FRENCH MIXED-SYSTEM CAR.

Differences of opinion among automobile manufacturers regarding automobile design are narrowing down to matters of detail, and to the layman all cars look pretty much alike; the trained faculties of the technician are usually required to appreciate the differences between modern automobiles. In the accompanying engraving, however, is shown a car that differs very greatly from the ordinary type, though its appearance varies but little from the conventional design. This car is the Krieger, built by the famous French house of that name, and is driven by a "mixed system" of gasoline and electricity. The gasoline motor, of the usual type and, in this case, of 16 horsepower, is direct-connected to a dynamo, so that when the motor is running the dynamo generates electricity. This current is led through wires to two electric motors, geared to the rear wheels—a motor to each rear wheel. Thus there is no differential and there is no change-speed gear, the speed of the car being governed by the speed of the engine; the higher the engine speed the more current is generated and the faster the car runs. The engine is regulated in the usual way by ignition and throttle levers on the steering wheel.

There is another interesting feature. Under the rear of the body of the car there are a few cells of storage battery connected

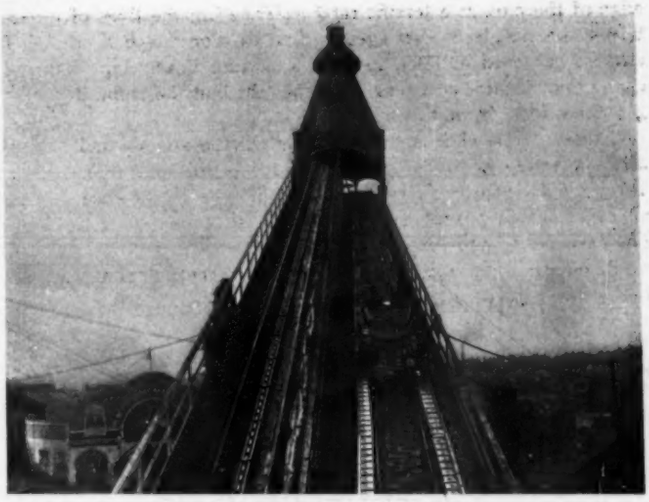


IMPORTED KRIEGER GASOLINE-ELECTRIC CAR.

to the dynamo on the engine shaft. Now, suppose the engine is at rest and it is desired to start the car. A lever at the side is moved, permitting the battery current to flow to the dynamo. This at once is driven by the current, acting for the time being as a motor, and turns over the gasoline motor until explosions occur and it runs by itself. Then the battery current is automatically cut out, the gasoline motor drives the dynamo, and the dynamo generates current to drive the car. There is no cranking—nothing to do but push a lever an inch or two to start the motor. A further movement of the same lever switches the current into the driving motors, the lever being pushed forward to go ahead and backward for the reverse. The ideally silent and simple operation of the machine makes it a fascinating one to drive or to ride in. Owing to the absence of change-speed gears and differential, the weight is not as great as might be expected; the car weighs 2,800 pounds fully equipped.

Captain Alexander Bianchi, of Paris, who is the owner of an extensive garage and is interested in the Krieger cars, brought four of the machines to New York for demonstrating purposes and is arranging for the establishment of an American branch house. He is accompanied by Paul Keller, head of the equipment department of Capt. Bianchi's Paris garage. The branch will probably be located in the vicinity of Broadway and Fifty-eighth street, New York.

On Monday afternoon, October 8, Capt. Bianchi, Mr. Keller and a friend, Mr. Ochs, started for Boston, leaving New York at 3 o'clock, to try the car on American roads.



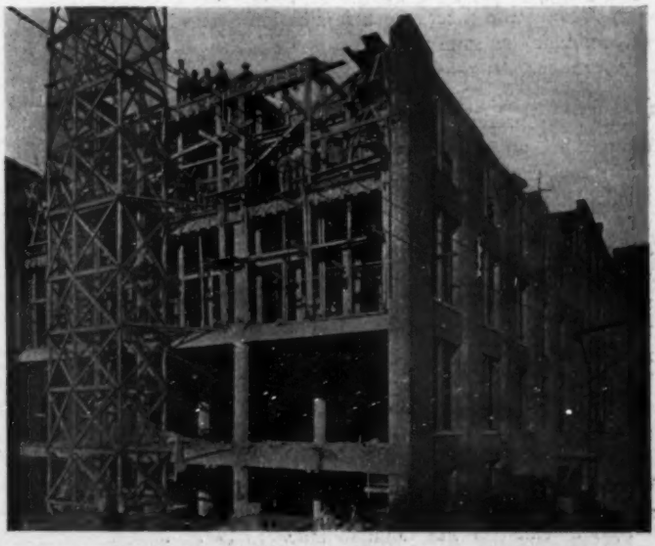
CLIMBING THE CHUTE AFTER WADING THE LAKE.

SHOOTING THE CHUTES WITH A PIERCE ARROW.

The accompanying picture was taken at Luna Park, Pittsburg, September 4, and the car used was the regular 1906 32-horsepower Pierce-Arrow, regular gear, runabout body, Bailey-tread tires, no chains. The grade is 33 per cent., 285 feet long from foot to top. The car entered the lagoon at the lower end, making it necessary to go through about 200 feet of water, averaging 22 inches in depth, before striking the incline. It ascended the chute at an average of 15 miles per hour; at the top it was turned around on the regular turntable and started down the descent, being made on an average of eight miles per hour; however, midway between top and bottom the brakes were put on and the car stopped to a dead standstill, the occupants lighting their cigars, then the brakes were released and the car shot down the balance of the incline, striking the water at about 15 miles per hour, thoroughly drenching the occupants, but in no way hindered from continuing its journey through the water to the end.

OIL AS A FACTOR IN AUTO RACING.

The importance of lubricating oil as a factor in automobile racing was indicated at the Vanderbilt Cup course on Long Island last Saturday. The A. W. Harris Oil Company, Providence, R. I., was represented by Fred T. Bailey, manager of the automobile lubricating department. Mr. Bailey was at the course during the week preceding the race, and made daily visits to the different racing headquarters.



CONCRETE ADDITION TO THE FRANKLIN PLANT AT SYRACUSE, N. Y

THE AUTOMOBILE

VOL. XV Thursday, October 11, 1906 No. 15

THE CLASS JOURNAL COMPANY,
Flatiron Building, Madison Square
New York City.

H. M. SWETLAND, President.

EDITORIAL DEPARTMENT:

A. G. BATCHELDER, Managing Editor H. F. DONALDSON, Engineering Editor
R. F. KELSEY, Associate Editor HOWARD GREENE, Assistant

BUSINESS DEPARTMENT:

A. B. SWETLAND Business Manager
L. R. SMITH B. FRANK BARNETT
W. I. RALPH, 1034 Old South Building, Boston, Mass.
C. H. GURNETT, H. H. GILL, 625 Monadnock Block, Chicago, Ill.

Cable Address - - - - - - - - - Autoland, New York
Long Distance Telephone - - - - - 300 Gramercy, New York

SUBSCRIPTION RATES:

United States, Canada and Mexico, - - - - - One Year, $2.00
Other Countries in Postal Union, - - - - - One Year, $3.60

To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:

ENGLAND:—Iliffe & Sons, Limited, 3 St. Bride St., Ludgate Circus, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel, Mohrenstrasse 9, Berlin.

Copyright, 1906, by The Class Journal Company.

Entered at New York, N. Y., as second-class matter.
The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly).

Copies printed in 1905,	- - - - - - - - - - -	730,000
" " This Issue,	- - - - - - - - - - -	15,500
" " Since Jan. 1,	- - - - - - - - - - -	604,500

A Decision That Is the Only One to Make. Automobile road racing under existing conditions is at an end on Long Island. This decision, arrived at by those who compose the Vanderbilt Cup Commission without holding a meeting, is the logical sequence of the single fatality that marred the third struggle for the Vanderbilt Cup, held Saturday last in the presence of thousands of people who overran the course around its entire circuit, fairly inviting death and disaster, lured into the very tack of the racers by a fascination that was utterly devoid of semblance of sanity.

A grander struggle among the motor giants was never seen in this country, but the conducting of this form of competition without the presence of troops to guard the course is not to be thought of another year. Using every effort in their power, Chairman Thompson and his associates endeavored to protect the public from danger, and in return for their labors wire fences were ruthlessly cut and trampled down, so that the insistent onlooker would crowd out upon the road and thus obtain a better view of the oncoming racers. When the total casualty list of the day includes a single spectator killed and one other maimed, there is a cause for wonderment and congratulation that the results did not include a veritable carnage. The drivers fairly had to plow through avenues of fleeing humanity, and that this state of affairs told upon them severely is too evident to need comment. Sufficient itself is the piloting of one of these high-speed cars, and when to it is added the fear of mowing down human beings the task has become altogether too much for a man even with nerves of steel.

Recognizing the utter futility of guarding an automobile road race course with the means now at hand, the American Automobile Association cannot do otherwise than decline any participation in future road events unless soldiers are available or the contest is held on a privately owned course which can be governed exactly as those owning it desire.

In the matter of a privately owned course, a start has already been made by the appointment of a special committee at this week's meeting of the A. A. A. Board of Directors. As was expected, several projects have been launched and old ones revived. The A. A. A. committee will endeavor to separate the chaff from the wheat and pick out one plan that can be indorsed and fathered by the national organization, the proper body to conduct the sport in this country. And judging from the unparalleled interest of Saturday last, this interest should continue for several years to come. Another great item in favor of a privately owned course is that it would supply to manufacturers a testing place for trying out their touring cars. Abroad there are miles of open road, in country sparsely inhabited, where the foreign makers have opportunity of driving their cars to their heart's content in this essential testing.

✱

What the Race Told from a Mechanical Standpoint. From a sporting standpoint, which, of course, is the public view of a race, America was badly beaten in the third Vanderbilt Cup race. Not one of the American cars finished, and the hopes of many thousands who had confidence in the ability of members of the American team to finish "in the money" were turned to genuine regrets. From a more coldly critical, technical standpoint, however, there is cause for gratification in the results that a careful analysis of performances discovers. Defeated but not disgraced is the trite saying that best sums up the results. For the cars of the accepted type of construction of sufficient power to class them in the first rank as racing machines, the race was one of tires, and, under the weather conditions that prevailed, one of defeat. Had the course been dry, it would have been possible for the Thomas and Locomobile entries to hold the road at the highest speeds using ordinary tires. Unfortunately, the wet and greasy conditions made the use of non-skidding tires imperative, and these were unable to stand the terrific strain. After the race, the Locomobile and the Thomas machines were practically as fit mechanically as when they started and a careful reading of the news report in other pages will convince any reader of their capacity for high and sustained speed.

Considering the race as a whole, the mechanical efficiency and reliability of the contesting machines are its most notable result. Aside from tire troubles, which cannot be charged to the automobile builder, the delays from breakages or from failure of parts to perform their designed functions were extraordinarily few. This result, which has been accomplished with the use of an unvarying factor of weight limitation, shows the high degree of engineering perfection which has now been reached in automobile construction. It is no longer possible to win a race by the aid of elaborate repair depots along the course; the car that cannot go and keep going stands small chance of even finishing. The result has shown, too, that ultra-refinements of construction are not as effective as delivered horsepower at the rims of the driving wheels, and that the general relation of the construction of a machine to the course on which it is to be driven is of considerable importance. It is not by any means the determining factor, but a valuable aid in accomplishing a result in which seconds count, where minutes were previously the smallest denomination.

The results of this race are full of encouragement to the American industry and show that it has now got its second wind in an international race.

THE A. A. A. TOURS OF THIS AND NEXT YEAR.

The Glidden Tour Commission, at its session held Friday last at the Waldorf-Astoria, accepted with unanimity the report of the Touring Committee of the American Automobile Association which conducted the 1906 event for Mr. Glidden's trophy. Herewith are the names of the thirteen perfect score participants:

Percy P. Pierce, Buffalo, N. Y., Pierce Arrow.
L. J. Petre, Cleveland, O., Stearns.
George M. Davis, Buffalo, N. Y., Thomas.
George Soules, Toledo, O., Pope-Toledo.
Wilbur C. Walker, Hartford, Conn., Pope-Hartford.
Philip S. Flynn, Pittsburg, Pa., Pierce Arrow.
William E. Wright, Springfield, Mass., Knox.
Charles P. Barrett, Hartford, Conn., Columbia.
A. E. Hughes, Philadelphia, Pa., Pierce Arrow.
Ernest Keeler, Lansing, Mich., Oldsmobile.
Charles H. Burman, Cleveland, O., Peerless.
F. E. Wing, Boston, Mass., Marmon.
Gus G. Buse, Buffalo, N. Y., Packard.

The commission, acting under Article 2 of the deed of gift, which reads, "The club of which the winner is a member shall have the custody of the trophy until won by another," ordered that the trophy should remain in the possession of the Automobile Club of Buffalo, as Percy P. Pierce, a member of said club and winner of the trophy in 1905, made a perfect score in the contest of 1906. The commission especially commended the work of the American Automobile Association Touring Committee in ably managing what was unquestionably the greatest touring event that has yet been held in America, "and takes pleasure in making mention of the work done by the Knox truck in carrying the baggage of the tourists over the entire route; the Packard car, driven by Mr. Fetch, which doubled the mileage daily in the service of the committee; the White steamer, driven by Mr. White, and the Maxwell car, driven by Mr. Grant, in distributing the confetti; the six-cylinder Pierce Arrow, as a press car; the Oldsmobile runabout, driven by Mr. Owen and used as an emergency wagon, carrying a miscellaneous assortment of supplies for the tourists."

Mr. Glidden stated that he had presented a silver medal to each of the thirteen entrants having a perfect score. It was

"Resolved, That the American Automoblie Association be requested to conduct the tour in 1907 over a route and under such rules and regulations as its Touring Committee may deem advisable to adopt."

POUGHKEEPSIE HAS AN AUTO TRAP.

POUGHKEEPSIE, N. Y., Oct. 7.—The South Road has an auto trap, and tourists will do well to bear it in mind when in the vicinity of Poughkeepsie. A local paper prints the following description of the trap:

"The residents of the South Road have erected an electrical system with stations every eighth of a mile over a four-mile course, and the north end is guarded by no less famous a personage than Constable "Jack" Hennessey, who is armed with a double-barreled shotgun. Hennessey's fame as a coon hunter and deadly wing shot needs no further introduction to an automobilist than to let him know that he will pepper his tires full of buckshot if he does not stop. One barrel is for the tires and the next is to be leveled at the chauffeur's head should he not cease his speed.

"Men guard the south approach and the north approach, with others at various intervals along the line. When an automobilist reaches the 'dead line,' as it were, the first man presses his stop watch and also the electrical button and the next timer down the road presses his stop watch. Down further, lying out of sight, is the man with the gun. If the automobilist is speeding at a rate in excess of twenty miles an hour the second man waves a red flag and the constable down the road immediately gets busy."

97 APPLICANTS FOR THE CHICAGO SHOW.

Applications for space at the Chicago show, which is to be held at the Coliseum and First Regiment Armory, February 2-9, 1907, closed for the first allotment on Monday, with a total of 97 applicants for automobile space, the largest number ever known in this country. The applicants asked for about 80,000 square feet of space. Only about 55,000 are available, the galleries of both buildings and a part of the second floor of the Coliseum annex being given up to the parts and accessories, as heretofore. Ten applications have been rejected, the applicants having taken part in an unsanctioned show, contrary to the rules of the National Association of Automobile Manufacturers, Inc., and the Motor and Accessory Manufacturers, Inc.

The drawing for space among the automobile manufacturers will take place on Wednesday and Thursday of this week, but the results will not be announced until after October 15, on which date acceptances are due. Members of the Motor and Accessory Manufacturers, Inc., applied for about 12,000 square feet of space and there are 60 applicants outside the membership of that association, so that every foot of space in both departments will be taken at the first allotment.

A. M. C. M. A. INCREASING ITS MEMBERSHIP.

Announcement was made at the meeting of the American Motor Car Manufacturers' Association last Friday, that the Reo Motor Car Company, of Lansing, Mich., had applied for membership and will exhibit in the Association's space at the show to be held in Grand Central Palace, December 1 to 8. In addition to the Reo, there has been a flood of applications for membership to the Association, including the following: American Machine Manufacturing Company, American Motor Car Company, B. L. M. Motor Car and Equipment Company, Dragon Automobile Company, Evansville Automobile Company, Watson Machine Company, Mora Motor Car Company, Pierce Engine Company, Rapid Motor Vehicle Company, St. Louis Car Company, Motorcar Company, Dolson Automobile Company, De Luxe Automobile Company.

The rooms of the Association in the Spalding Building, New York, were crowded on Friday with representatives drawing for space in the preferred position which the Association has secured for its members in the show. The De Luxe Automobile Company drew number one and secured first choice, but fortunately all the members of the Association were able to secure space on the main floor with the exception of those exhibiting commercial vehicles, which according to the rules are to be placed on the floor above.

FALL MEET AT EMPIRE CITY TRACK.

With the automobile racing fever at white heat, there is certain to be interest in the announcement made by the Empire City Club of its tenth race meet, to be held at the Empire City track, Yonkers, N. Y., Saturday, October 20, with a 100-mile race for stripped touring cars as the main feature.

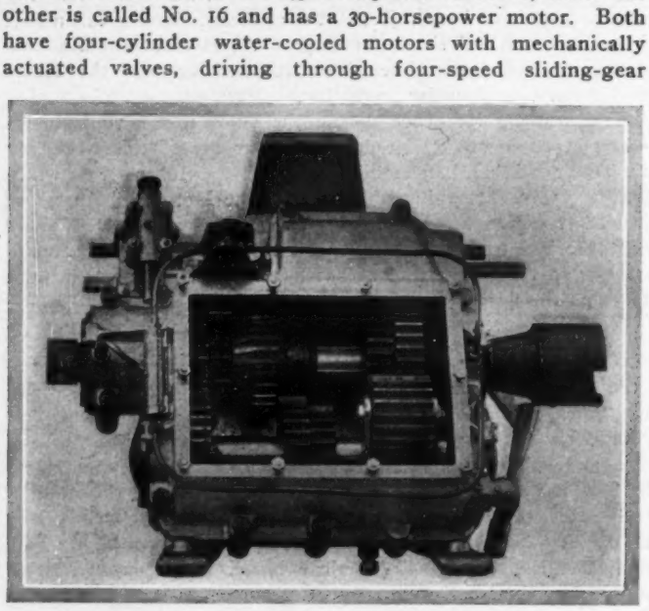
Aside from the 100-mile event, there will be prize events for stock cars, including one at three miles for cars selling at $1,500 or less; another at three miles for cars from $1,600 to $2,400; a five-mile event for cars from $3,500 to $5,000, and a ten-mile test for cars selling from $2,500 to $3,500. There will also be a dealers' handicap at five miles; another event for American cars, and a five-mile international race, open to cars of all countries. Silver trophies will be awarded to the winner in all the events.

A. L. A. M. MECHANICAL BRANCH MEETING.

A largely attended, two-session meeting of the mechanical branch of the Association of Licensed Automobile Manufacturers was held at the executive offices, 7 East 42d street, New York, last Friday. The subjects under discussion were lubricating oils, steels, brakes, and material for them. Representatives of the leading steel manufacturers were present and explained the old and new methods used in the making of steel and other factors having to do with the preparation and production of the material.

THE CONSTRUCTION OF THE 1907 PEERLESS

TWO cars are offered for the season of 1907 by the Peerless Motor Car Company, of Cleveland, O., manufacturers of the Peerless automobiles. One of these will be known as No. 15 and is a 45-horsepower machine, while the other is called No. 16 and has a 30-horsepower motor. Both have four-cylinder water-cooled motors with mechanically actuated valves, driving through four-speed sliding-gear



FOUR-SPEED SELECTIVE TRANSMISSION WITH TOP OFF.

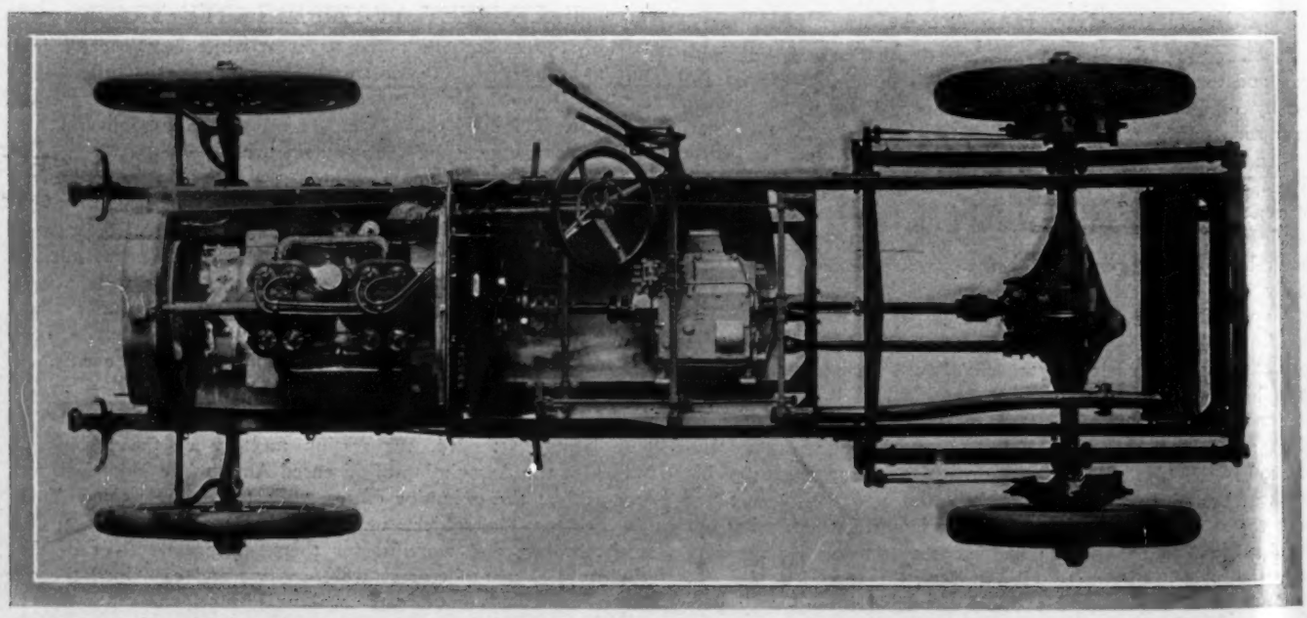
transmissions, propeller shafts and bevel gears to the live rear axles, and are practically alike except in point of size. The larger car, No. 15, has cylinders of 5 1-4-inch bore and 5 3-4 inches stroke, while in the smaller car, No. 16, the cylinders have a bore of 4 5-8 inches and a stroke of 5 1-2 inches. No. 15 has a wheelbase of 114 inches, and No. 16, 109 inches. The regular body is a newly-designed touring body seating five persons; the chassis may be fitted with roadster or limousine bodies, however, on order. The mechanical features are practically the same for both chassis.

The frame is of the usual channel steel section, dropped 2 1-2 inches just in front of the rear axle to bring the weight of the car low down and to bring the shafts into alignment without decreasing the road clearance. The motor is the same general appearance as the 1906 motor, except that the circulating pump is now on the left side of the motor. Cylinders are cast in pairs, with valve chambers offset and located on opposite sides of the cylinders, inlet valves on the right and exhaust valves on the left. The water jackets are cast integral with the cylinders, but are left open at the top to facilitate the removal of the cores; the openings are then closed by aluminum plates. Cylinders are bored, reamed, ground and, finally, lapped with a special polishing preparation, with pistons and rings all in place. A single aluminum casting forms the crankcase, and this is fitted with handholes in the bottom, through which the bearings may be reached; plates cover these holes, and in the plates are deep grooves into which dirt and sediment from the oil may settle. Plugs in these grooves permit the dirt and old oil to be run off without difficulty. Leakage of oil around the crankshaft at the front bearing is prevented by fitting a stuffing-box. The crankshaft is drop-forged, specially treated and hardened and ground.

Inlet and exhaust valves are of identical construction and size, and are therefore interchangeable, and are made from chrome nickel steel. The half-time gears, pump and magneto gears are inclosed in a housing on the front end of the crankcase, and run in oil.

A sight-feed lubricator on the dashboard sends oil to the cylinders, while the crankpins, piston pins and main bearings are lubricated by splash, the oil in the crankcase being replenished by special feeds. Change-speed gears and shafts run in oil, and the universal joints are packed with grease.

High-tension or jump-spark ignition is employed, current being furnished by Fulmen batteries, imported from France; the coils are also French. A magneto is fitted on special order. The rotary water pump is gear-driven through a spindle, and drives the cooling water through a radiator similar in the main to the 1906 radiator, but of greater capacity, efficiency and strength. The water jackets on the cylinders are larger than heretofore.

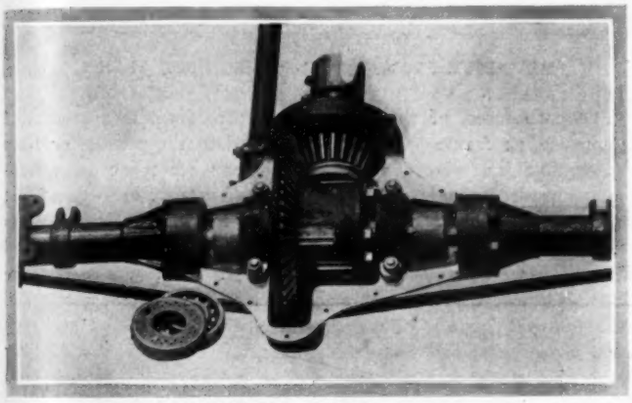


PLAN VIEW OF CHASSIS OF PEERLESS 1907 CAR SHOWING DOUBLE JOINTS BETWEEN CLUTCH AND TRANSMISSION GEARCASE.

In order to secure smooth running, particular attention is given to the balancing of the rotating and reciprocating parts. The crankshaft is finished and balanced by itself. The flywheel is then attached and the flywheel and shaft balanced together. Lastly, the pistons, piston rings, piston pins and connecting rods are finished to precisely the same weight. The result is a very smooth-running, evenly-balanced motor.

The internal expanding clutch is two inches larger in diameter than last year's clutch, and works very smoothly and without jar, but holds without slipping when fully engaged. The clutch is simple in construction, easily understood, and wear can be taken up readily with no other tools than a screwdriver and a pair of pliers. If it becomes necessary to remove the clutch it can be taken out without disturbing any other parts of the mechanism and without removing the dust-pan underneath.

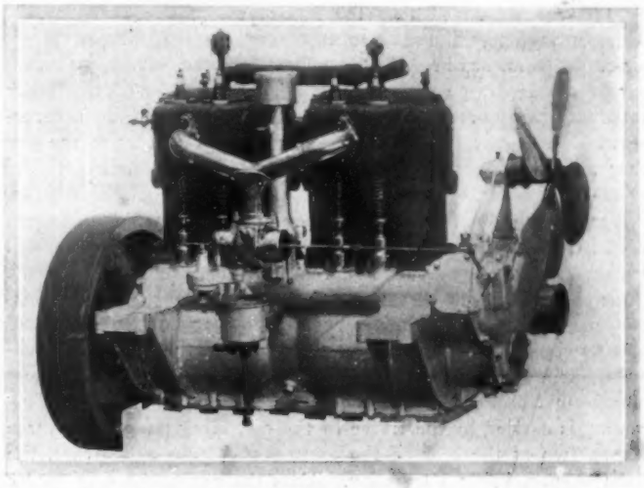
All gears and shafts in the change-speed mechanism are of chrome-nickel steel. The four speeds and reverse are controlled by a single lever of the selective type. The sliding pinions move on a round shaft with four keys. Large imported ball bearings are fitted to the gearshafts, and these are lubricated independently, being protected from the oil in the crankcase, which is apt to be more or less filled with particles of metal from the gears. The joints are carefully



LIVE REAR AXLE AND BEVEL GEAR DRIVE.

packed to prevent the leakage of oil and grease. The gearcase is horizontally divided, cast of aluminum, and has a large hand hole in the top for the inspection of gears and shafts and the insertion of lubricant. Between the engine and the transmission gearcase there is a short shaft with a double universal joint. If it should become necessary to remove either the clutch or the gears, the joint allows ample clearance so no other parts need be disturbed.

Final drive is by means of a nickel-steel propeller shaft with two universal joints housed in grease-packed casings. There is not a screw or a nut in these joints. The shaft is easily detached. The live axle shafts are also of nickel steel. The bevel gears are large and strong, made of hardened steel and run in grease on ball bearings in a dust-proof casing. There are two universal joints, at the points where the live shafts connect with the large gears of the differential, these preventing any binding of the gear from springing of the axle tubes. As a consequence of this joint arrangement the axle is permitted to be made slightly arched, giving great strength, and the rear wheels are dished two degrees, as are also the front wheels. The rear wheels run on imported ball bearings. The main bearing for the bevel driving gear is solidly supported in the differential housing and can be removed easily, together with the gear itself. Axle tubes are of heavy steel brazed into the cast steel differential housing; spring perches are brazed to the tubes. Adjustable distance rods extending from the side frames to the rear axle take the driving stresses, relieving the rear springs of all but their legitimate stresses.



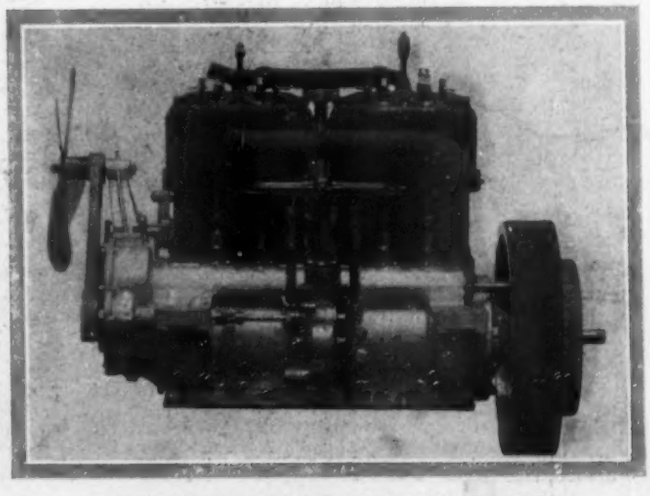
INLET VALVE SIDE OF PEERLESS 1907 MOTOR.

The front is a solid one-piece I-beam forging of steel with integral spring seats and no welds. Ball bearings are fitted to both wheels and steering knuckles and special provision is made for lubrication. Steering gear is of the worm and sector type and mounted on ball bearings. This part of the car has been made much stronger than last year and the wearing surface is three times greater.

Special efforts have been made to get really fine springs, and those used are made by Lemoine, in France. They are highly polished, very resilient, and both front and rear springs are longer than they were last year. The spring eyes are fitted with bronze bushing.

Wheels are 34 inches in diameter, with dished spokes. Four-inch tires are used on the front wheels, while the rear tires are half an inch larger. Fenders are somewhat different from those used in 1906, and the front fenders have aprons filling the space up to the body.

The standard equipment of the Peerless cars consists of a French horn, two oil side lights, two gas headlights, tail light and a set of tools and spare parts. The standard color will be Peerless green, though any other color will be furnished on order, five or six weeks' time being required for painting.



EXHAUST SIDE, SHOWING GEAR-DRIVEN PUMP

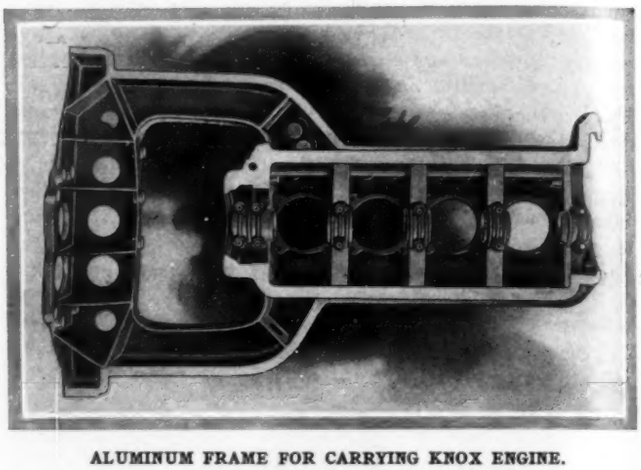
THE WATERLESS KNOX FOR 1907

FOR the season of 1907 the Knox Automobile Company, of Springfield, Mass., manufacturing the well-known Knox air-cooled cars, has brought out an entirely new model, a touring car of standard type with four-cylinder vertical air-cooled motor rated at 25-30 horsepower, driving through a cone clutch, three-speed sliding-gear transmission, shaft and bevel gears to the live rear axle. The car, known as Model H, is very similar to the 35-40-horsepower 1906 car, though of course somewhat smaller.

Apart from the threaded-pin cooling system, which has been used by the Knox company for so long that it is entirely too well known to be called a novelty, the main feature of note is the three-point suspension system supporting the engine and transmission in a single unit. The entire power and change-speed group—engine, flywheel, clutch, clutch pedal, change-speed mechanism and speed lever—is mounted in a single rigid, jointless aluminum frame, cast of a special alloy of great strength. This casting is carried by the frame of the car, being attached at three points, two at the rear of the casting and one at the front, the front support being a trunnion. Thus the car frame may spring or twist to any ordinary extent without in any way affecting the alignment of the engine and change-speed gearing.

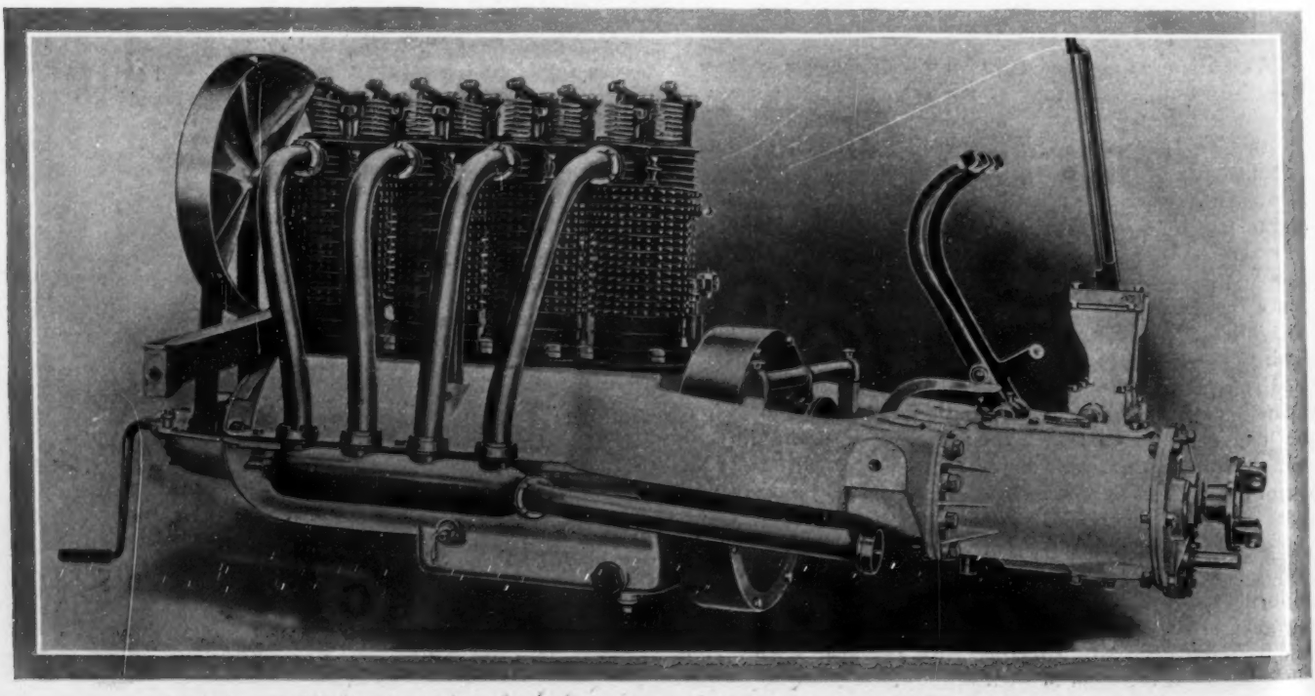
The four vertical cylinders of the engine have a bore of 4 3-8 inches, and a stroke of 4 3-4 inches, and are capable of driving the car at a maximum speed of 45 miles an hour. The cylinders are bolted to the aluminum casting already referred to, part of which forms the upper half of the crankcase. The lower half of the crankcase consists of a removable aluminum casting which acts mainly as an oil reservoir. A novel feature of the engine is that both inlet and exhaust valves, all mechanically operated, are on the same side of the engine and are operated by cams carried by a single camshaft. This is brought about by the offsetting of the valve chambers. Each valve is drop-forged from a single piece of nickel steel; the valve diameter is 1 3-4 inches. All valves are alike and interchangeable and are contained in removable cages. These cages, as well as the valve springs, are all alike. Studs and nuts hold the cages in position and copper gaskets make the joints gas-tight. The valves are operated by long rods acting through rocking levers, the ends of the levers where they come in contact with the valve rod ends being hardened, as are also the steel ends fitted over the valve stems.

Separate steel tubes carry the exhaust to an expansion chamber formed integral with the frame casting of the engine, and from thence a single tube leads to a double-chambered muffler. Copper gaskets prevent leakage at all joints.

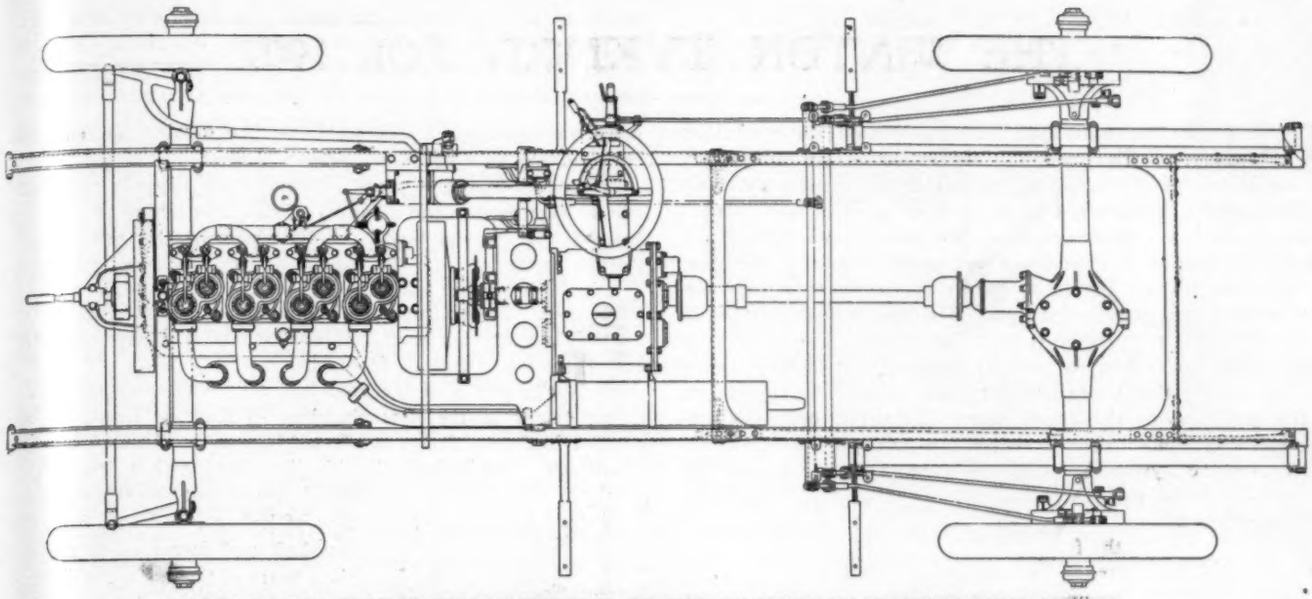


ALUMINUM FRAME FOR CARRYING KNOX ENGINE.

The carbureter, of the constant mixture type, is also carried by the engine frame. Gasoline is carried to the carbureter from a 16-gallon tank placed under the driver's seat; for use on excessive grades, where the backward tilt of the car is so great that gasoline cannot run to the carbureter, there is a small cast brass tank attached to the dashboard. The crankshaft, drop-forged from high-carbon steel, is 1 9-16 inches in diameter and has five bearings. The bearing at the flywheel end is 4 inches long and the opposite end and the three intermediate bearings are each 2 1-2 inches long, all being babbitted and hand-scraped to their respective journals. The two-to-one gears are inclosed in a housing at the forward end of the engine, and still further



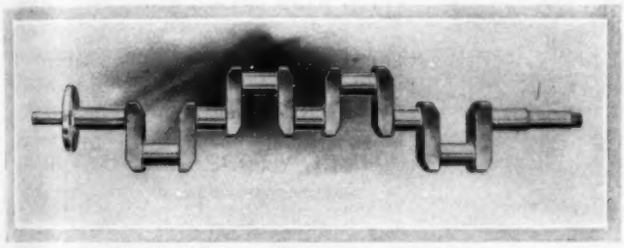
EXHAUST SIDE OF KNOX WATERLESS MODEL H MOTOR, SHOWING TRANSMISSION UNIT BOLTED TO CASE.



CHASSIS PLAN OF KNOX WATERLESS MODEL H, SHOWING FEATURES OF CONSTRUCTION IN OUTLINE.

forward is the fan driving pulley and the starting crank and ratchet, all supported in housings in the main casting.

Near the rear end of the camshaft is a gear-driven shaft projecting upward, on which is mounted the timer for the ignition. A similar shaft, projecting downward, carries a rotary pump for the lubricating system. The lower part of the crankcase forms



CRANKSHAFT USED IN KNOX MODEL H.

an oil reservoir, and from this the pump takes oil, through a strainer, and delivers it to the various friction surfaces of the engine through ducts formed in the casting. Oil passages are drilled in the connecting rods and these holes communicate with oil ducts in the crankshaft which, in turn, communicate with the passages in the crankcase casting. Thus the wrist-pins and crank-pins are lubricated by direct pressure, while the cylinders are oiled by splash. A gauge shows the pressure on the oil, and a by-pass valve serves to regulate it.

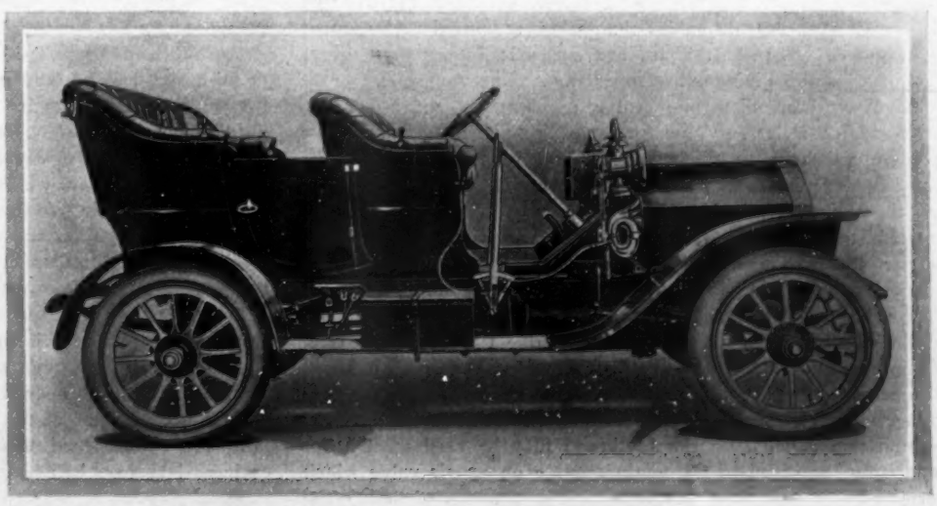
The clutch is of the reversed type, with metal-to-metal faces, running in a bath of oil. The flywheel forms the exterior member, the rear end being closed by an oil-tight casing. Four adjustable helical springs force the cone into engagement and a ball bearing takes the thrust. A coupling is placed between the clutch and the gearbox, so that it is an easy matter to remove the clutch without disturbing the change-speed mechanism.

The change-speed gear is of the selective type, giving three forward speeds and a reverse, and the gear shafts are mounted on roller bearings. All gears are of 1-inch face and 6 pitch, made of steel and hardened. Drive is direct on the high gear. The gears are so proportioned that with the engine running at 1,200 revolutions a minute the high gear will drive the car at 45 miles an hour, the second 25 miles an hour, and the third, or low speed, 11 miles an hour. With the same engine speed, the reverse will drive the car 8 miles an hour. Transmission gears run in heavy oil and can be inspected through a large opening closed by a plate.

The live rear axle is mounted on roller bearings, while end thrust is taken by a ball bearing; the pinion shaft is carried in two large annular ball bearings. The differential is of the spur type. The bevel driving gears are of hardened steel, 4 pitch, and the reduction may be 3 to 1, 3 1-2 to 1 or 4 to 1, at the option of the purchaser.

Internal expanding rings and external contracting bands act on common brake drums on the rear hubs. Front axle is of heavy steel tubing, dropped to give space for the crankcase. Steering gear is of the multiple-thread nut and screw type and is carried in ball bearings.

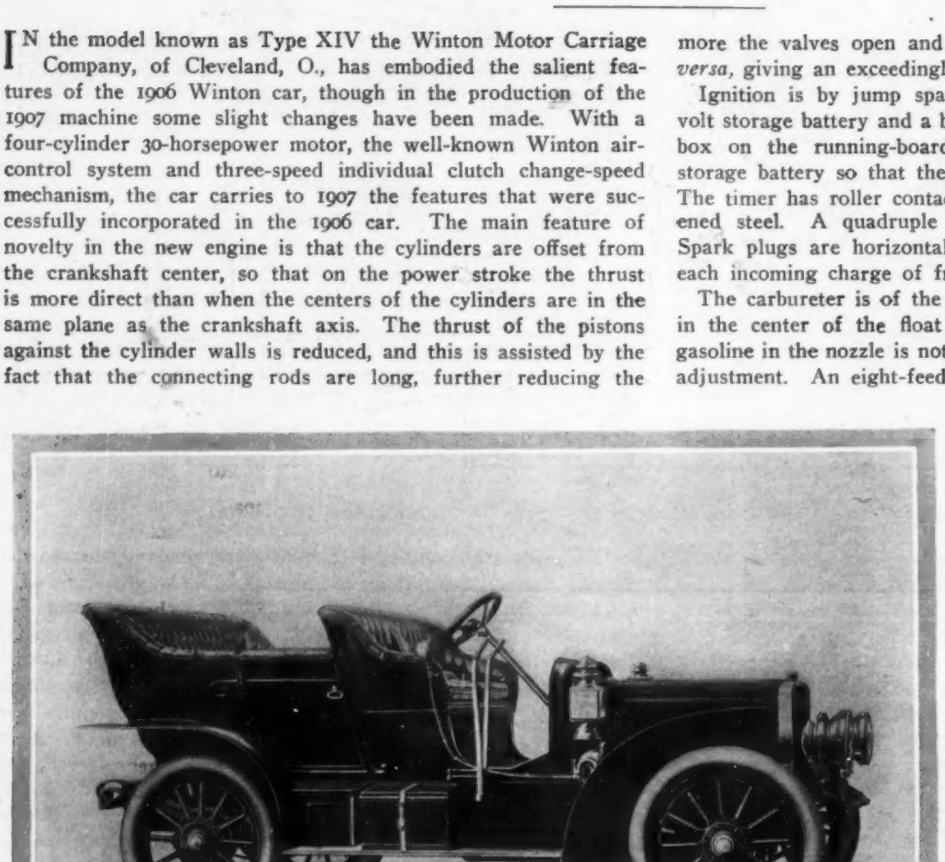
The body is of the straight-line style and will be finished in green or red. A runabout body can be placed on the same chassis on special order. The wheelbase is 102 inches and the tread 56 inches; wheels, 32 by 4 inches. The car weighs, complete, 2,250 pounds and is equipped with oil side and tail lights and a complete set of tools.



SIDE VIEW OF KNOX WATERLESS, MODEL H, FOR 1907.

THE WINTON TYPE XIV FOR 1907

IN the model known as Type XIV the Winton Motor Carriage Company, of Cleveland, O., has embodied the salient features of the 1906 Winton car, though in the production of the 1907 machine some slight changes have been made. With a four-cylinder 30-horsepower motor, the well-known Winton air-control system and three-speed individual clutch change-speed mechanism, the car carries to 1907 the features that were successfully incorporated in the 1906 car. The main feature of novelty in the new engine is that the cylinders are offset from the crankshaft center, so that on the power stroke the thrust is more direct than when the centers of the cylinders are in the same plane as the crankshaft axis. The thrust of the pistons against the cylinder walls is reduced, and this is assisted by the fact that the connecting rods are long, further reducing the angularity on the down stroke. Inlet valves are of the automatic type and are placed on the same side as the exhaust valves. The single camshaft necessitated by this construction is offset from the valve-rod center line, giving a more direct thrust when lifting the valves than when the usual arrangement is employed. Camshaft gears are encased; intermediate gears are of rawhide, giving silent operation. The camshaft can be removed without disturbing valve adjustments, valve springs, push-rods or rollers. Valves are made of nickel steel and have a high resistance to the oxidizing and waring effects of the hot exhaust gases. Crankshaft can be removed without detaching the cylinders or other motor parts, and is made of specially treated steel having a tensile strength of 95,000 pounds to the square inch. The aluminum crankcase is vertically divided and is provided with large hand-holes.



WINTON 30-HORSEPOWER TOURING CAR FOR 1907 MODEL XIV, WITH OFFSET CYLINDERS.

Motor speed is governed by the air-control system worked out in the Winton factory and used for a long time on these cars. Compressed air acts on the inlet valves and regulates the amount of opening they are allowed, and consequently the amount of gas passing to the cylinders. A lever on the steering wheel column and a pedal on the footboard may be used at will for regulating the speed of the engine, acting on an air valve which permits more or less air to flow to the pistons controlling the motor valves. The more air admitted to these little pistons, the more the valves open and the faster the motor runs, and *vice versa*, giving an exceedingly delicate control.

Ignition is by jump spark, current being supplied by a six-volt storage battery and a battery of dry cells carried in a locked box on the running-board. Solid electrolyte is used in the storage battery so that the danger of slopping over is avoided. The timer has roller contacts, the contact points being of hardened steel. A quadruple coil is mounted on the dashboard. Spark plugs are horizontally placed where they are fanned by each incoming charge of fresh gas.

The carbureter is of the float feed type with the spray nozzle in the center of the float chamber, so that the height of the gasoline in the nozzle is not affected by grades. There is but one adjustment. An eight-feed Hill oiler, fitted with a drip pan to avoid unpleasant consequences in case of leakage, is driven from the camshaft and forces oil to the various parts of the engine. Oil from the crankcase is carried on to the gearcase, the change-speed gears running constantly in a bath of oil.

Cooling of the circulating water is effected by a vertical tube radiator having 86 tubes with fins. The fan runs on ball bearings and is friction driven.

As its name indicates, the change-speed mechanism provides a separate clutch for each change of speed, this system of transmission always having been a Winton feature. The film of oil that forms between the friction surfaces of the clutches prevents any sudden gripping and gives a smooth, easy engagement. The gear shafts run in bronze bearings and are completely enclosed from dirt and dust. The gearcase is horizontally divided and the upper half is removable for getting at the gears and shafts. For inspection and lubrication there is a hand-hole in the top half of the case with an easily-removed cover.

Final drive from the gears is by propeller shaft and bevel gears to the live rear axle. The universal joints are of heavy construction, hardened to give long wear and ground to an exact fit, and they are enclosed in dust-proof, grease-tight metal casings. The arrangement of the parts is such that when the car is normally loaded the shafts are all in line, so that the duty devolving on the universal joints is confined to compensating for the slight angles caused by the up-and-down movement of the body on its springs. The pinion shaft runs on heavy ball bearings. A torsion rod running from the rear axle casing to a cross member of the frame relieves the propeller shaft of the torsional stresses set up by the tendency of the rear axle casing to rotate in a direction opposite to the wheels. Two radius rods maintain the position of the rear axle at right angles to the frame. The rear axle is equipped throughout with ball bearings. The front axle is a one-piece forging of steel of I-beam section, replacing the cast bronze front axle used in the 1906 cars. Twin springs are retained in the new model.

Wheels are of wood, 34 inches in diameter, with twelve spokes each, and run on ball bearings.

Steering gear is of the screw and nut type, with ball thrust bearing; steering knuckles are of the Lemoine pattern and are

fitted with roller thrusts. There are two sets of brakes, both acting on drums on the rear hubs: one set is of the internal expanding ring type and the other consists of contracting bands. Equalizers insure an even distribution of braking power, helping to avoid skidding when the brakes are applied.

The body will comfortably carry five persons, the rear seat being extremely wide and luxurious. A feature that makes a vast difference in the comfort of the passengers is the foot-rest in the tonneau.

Under the machinery is a dust-pan covered with canvas which protects the working parts, helps to deaden sound and catches dripping oil. Mudguards are of laminated wood, wide and sweeping, and aprons are fitted between the guards and the body, preventing the dirt flying between. There is ample storage space under the seats, and there is a trunk carrier over the gasoline tank at the extreme rear. Hood is of aluminum, hinged at the center, held securely and prevented from rattling by patented fasteners.

In the finish a choice of Winton red, Royal blue, Brewster green or French gray may be had. The body work may be of one of these colors and the running-gear of another. The regular equipment consists of two gas headlights, two oil side lights, an oil tail lamp and a full set of tools carried in a locked toolbox on the running-board. Wheelbase is 56 inches and the tread 56 1-2 inches. Tires are 4 inches in diameter, the same size being used on both front and rear wheels.

TWO NEW GARAGES INSTALL SNELL SYSTEM.

Now that it is the proper thing for a wealthy automobilist to possess a number of cars of different types, just as he has a large stable of horses, big private garages are being built as a matter of convenience, the owner not caring to keep his cars at a public garage at a distance. A particularly fine garage for private use is being built for Isaac V. Brokaw, of New York, at 1080 Madison avenue. The building will be six stories high and will be equipped with a complete machine shop and all facilities for making repairs of all kinds. In the upper stories will be quarters for chauffeurs and other employees connected with the garage. Notwithstanding the extent of the establishment, only six cars will be kept there. In order to avoid the bother inseparable from the frequent delivery of gasoline to tanks of small capacity, a storage system with a capacity of 1,100 gallons was installed. The system used is the Snell hydraulic system, in which gasoline taken from the tank is replaced by water entering from below; on account of the different specific gravities of the two liquids they will not mix, but any dirt or other foreign matter in the gasoline will drop to the bottom and sink through the water. The gasoline is of course taken from the top. As no air reaches the gasoline, there is no evaporation. The system was installed by the Safety Tank Company, of 25 West Forty-second street, New York, Eastern agents for the Snell company.

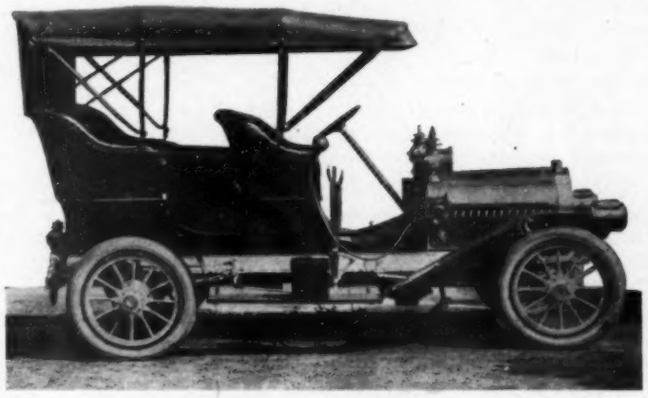
The same concern has contracted to install a Snell gasoline storage system for P. P. Easton, president of the Mineola Motor Car Company, at the garage of that company on the Jericho turnpike, Long Island, which forms part of the Vanderbilt Cup course. This made it easy to serve gasoline to the great number of cars requiring it at the Vanderbilt Cup elimination trial and at the race itself.

HENSHAW GETS HAYNES FOR NEW ENGLAND.

C. S. Henshaw, of Boston, will be New England repesentative for the Haynes Automobile Company of Kokomo, Ind., for 1907. Mr. Henshaw, who for the past six years has been identified with the New England selling trade, will occupy a building now in course of construction at the corner of Massachusetts avenue and Newbury street, Boston, with the Haynes line, as soon as the building is completed.

THE MORA TOURER FOR 1907.

Moderate-priced cars, of substantial design and reliable in operation, will always be popular, for they are within the reach of a very much greater number of people than the cars that cost a small fortune to buy. In the former class is the Mora Tourer,

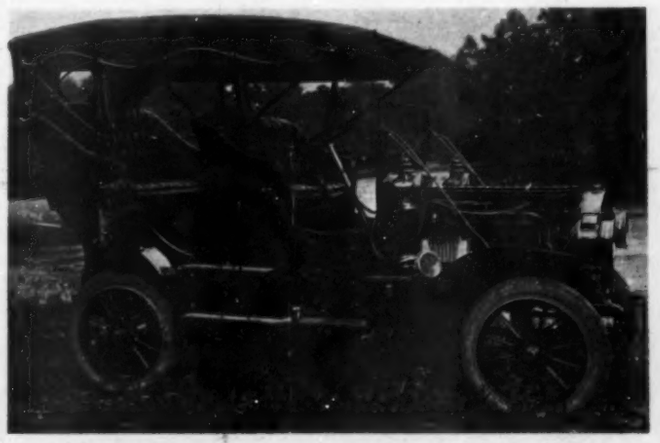


MORA TOURER FOR 1907, WITH MOROCCOLENE TOP.

built by the Mora Motor Car Company, of 318 Livingston Block, Rochester, N. Y. The Mora Tourer is exactly the same, so far as mechanical equipment is concerned, as the Mora roadster, which has been described fully in detail in THE AUTOMOBILE. The wheelbase is five inches longer, however, being 103 inches in the new model, while the body is of the regular touring type with side entrances. Motive power is furnished by a 24-horsepower four-cylinder water-cooled motor. Wheels are 32 inches in diameter. The total weight of the car is 1,900 pounds. The price, $2,200, includes a full tool equipment and also a pair of 7-inch lens mirror searchlights with separate generator. The moroccolene to shown in the illustration is, of course, extra and is articularly adated to the car.

THE LAMBERT MODEL 8 FOR 1907.

Friction drive seems to have passed the experimental stage, so far as the Lambert cars, manufactured by the Buckeye Manufacturing Company, of Anderson, Ind., are concerned. The accompanying illustration shows the Lambert Model 8, which is practically a 1907 car. The machine is of course fitted with the Lambert friction change-speed mechanism which has "made good" in many strenuous road tests. The machine is of attractive appearance; an interesting feature is the side door on each side of the footboard, which keeps out dust in the summer and wind and cold in bad weather. The car has ample road clearance,



LAMBERT MODEL 8, 35-40 HORSEPOWER, FRICTION DRIVE.

which makes it particularly suitable and safe for use on rough country roads.

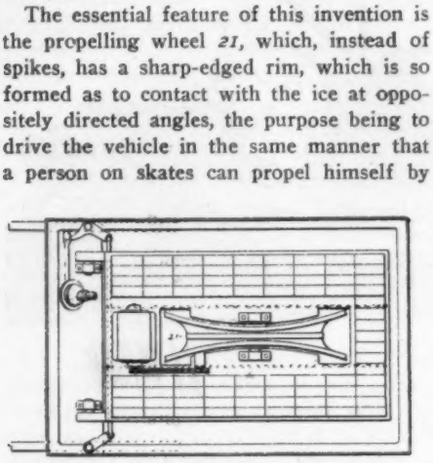
The motor is a Rutenber, rated at 35-40 horsepower, with jump-spark ignition. The wheelbase of the car is 106 inches and the tread 56 inches. The road clearance is 14 inches.

Patents

Automobile Sleigh.

No. 831,820.—B. Beskow, of San Francisco, Cal.

The essential feature of this invention is the propelling wheel *21*, which, instead of spikes, has a sharp-edged rim, which is so formed as to contact with the ice at oppositely directed angles, the purpose being to drive the vehicle in the same manner that a person on skates can propel himself by



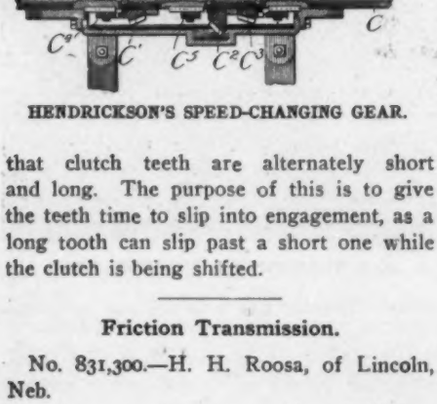
BESKOW'S AUTOMOBILE SLEIGH.

alternately spreading his feet and bringing them together without lifting them from the surface of the ice.

Speed-changing Mechanism.

No. 831,433.—M. Hendrickson, of Chicago, Ill.

In this device *C* is the driving shaft and *D* the driven shaft. The three bevel pinions C^1 C^2 C^3 are loose on *C* and are clutched to *C* by the claw clutches C^4 C^5 and C^6, giving respectively the reverse and the high and low speeds forward. The pinions engage bevel gears D^1 D^2 which are shifted on *D* as shown. The detail sketch is a development of a simple gear and clutch, showing



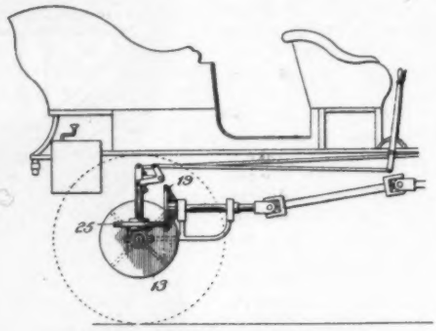
HENDRICKSON'S SPEED-CHANGING GEAR.

that clutch teeth are alternately short and long. The purpose of this is to give the teeth time to slip into engagement, as a long tooth can slip past a short one while the clutch is being shifted.

Friction Transmission.

No. 831,300.—H. H. Roosa, of Lincoln, Neb.

In this transmission the power is delivered from the engine through a propeller shaft to a friction disk *19* journaled in a frame on the rear axle. This transmits power through the friction wheel *25* to the



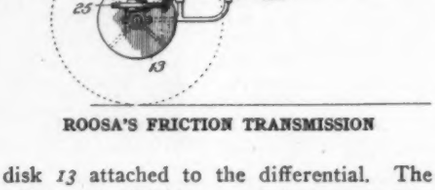
ROOSA'S FRICTION TRANSMISSION

disk *13* attached to the differential. The wheel *25* is slidable up and down and gives the low speed in its highest position and the high speed in its lowest position, which is shown.

Detachable Tire Rim.

No. 831,632.—J. C. Schleicher, of Mt. Vernon, New York.

This rim *17* is made to slip over a stationary rim *4*, which is permanently at-



SCHLEICHER'S DETACHABLE TIRE RIM.

tached to the felly and through which at intervals pass set screws *15*, whose points enter recesses in *17*. A ring *30* is secured to *17* to locate *4*, and when the tire is to be removed the screws *15* are simply slackened a trifle till their ends are clear of *17*. The tire is held in place in *17* by screws *22*, which enter round nuts *24* which imbed themselves in the edges of the shoe.

Carbureter.

No. 831,832.—H. E. Coffin, of Detroit, Mich.

This is a simple form of automatic carbureter, in which a portion of the air stream is shunted past the spray nozzle without taking up gasoline. The spray nozzle has a number of holes through which the gasoline passes, and it is surrounded by a light valve, which is normally held in the proper position by a spring. Under this condition the air stream passes wholly through the central hole around the spray nozzle. As the suction increases the valve lifts and a portion of the air passes up through the annular space around it.

COMPOSITION OF ACETYLENE

Vivian Lewes, whose name is conspicuously associated with gas matters, points out in his large work that it was in the year 1860 when Berthelot published his first classical researches upon acetylene.

It was in this paper, says the *Acetylene Journal*, that the name "acetylene" was first bestowed upon the compound, and Berthelot, having determined the composition by careful eudiometric analysis and having ascertained that its specific gravity was 0.92, adopted for it the formula C_2H_2, and pointed out the comparative simplicity of the gas. He showed that it was the simplest member of its group.

What led Berthelot to christen this new discovery as acetylene was the fact that it bears the same relation to the radical acetyle, C_2H_3, that ethylene does to the radical ethyl, C_2H_5, and it is by this name that it is universally known.

The ratio of carbon atoms to hydrogen was the subject of profound research by French chemists. Mr. Davey had expressed its composition as C_2+H; when the atomic weight of carbon was recognized as 12 instead of 6, acetylene assumed the formula C_2H_2.

Davy found that it required two and a half volumes of oxygen to complete the combustion of one volume of acetylene, and that two volumes of carbon dioxide and one of water were produced. Berthelot states as the result of eudiometric analysis that the composition of acetylene was:

Carbon	92.3
Hydrogen	7.7
	100.0

Various analytical results have shown that the ratio of carbon to hydrogen in acetylene is as 12 to 1, and the density of the gas at once shows that the molecule must be represented by the formula C_2H_2. It has a molecular weight of 26 and density of 13.

It is of much interest to note that acetylene occurs in minute traces in coal gas and all other gases produced by the destructive distillation of organic matter containing hydrogen and carbon, while Lewes informs us that it is invariably found in the interior of all hydrocarbon flames.

AUTOMOBILE STAGE LINES.

An automobile stage line has been inaugurated in Washington, Miss., and a car is on the route.

An automobile stage line between Frankfort and Lawrenceburg, Ky., will be in active operation within a short time, carrying passengers and light freight and parcels. The first car put on the route will carry about twenty passengers; later a larger machine will be added, and this will be inclosed and heated for cold weather travel.

NEWS AND TRADE MISCELLANY.

The Omaha agency for Rambler machines claims the distinction of being next to New York and Los Angeles in point of number of cars sold in 1906 to date.

The Atlantic Motor Car Company, of New York, handling the Stoddard-Dayton cars, has removed to the corner of Broadway and Fifty-seventh street, occupying large and convenient quarters.

Streator, Ill., is to have an automobile factory, work upon which has been commenced. The parties interested in the enterprise are Paul Chubbuck, J. C. Barlow, L. P. Halladay and George Barton, of Chicago. Business will be commenced as soon as the new buildings are completed.

The Maxwell-Briscoe-Chase Company, 1407-1409 Michigan avenue, Chicago, is remodeling the salesrooms for the formal opening of the branch house which will distribute Maxwells in the West. The partition separating the stores is being removed and an entire new front is being placed in the building.

In last week's issue of THE AUTOMOBILE it was stated that the Manhattan Electrical Supply Company, of New York, has been manufacturing the well-known Mesco dry cell for two years. This should have read "for years," the interjection of the word two being a purely typographical error. The company has, in fact, been making the Mesco cell for over fifteen years.

In the Baker Motor Vehicle Company's advertisement that appeared in the September 20 issue of THE AUTOMOBILE a cut of another car was inserted. The error was so obvious that anyone at all acquainted with the characteristic lines of the Baker models would not be confused; however, THE AUTOMOBILE takes pleasure in making correction herewith.

The Barite Company, of 527 Fifth avenue, New York, has placed on the market a substance that, when added to gasoline or kerosene to be used for fuel, is said to increase the horsepower of the motor, prevent carbon deposit, pitting and corrosion, keep the exhause clear of smoke and odor and to be non-explosive outside of the cylinders of the motor. The substance is called Barite. The makers state that no readjustment of the motor is required; it is only necessary to add the Barite to the gasoline.

The United States Graphite Company, of Saginaw, Mich., is meeting with gratifying success with its new No. 205 lubricating graphite for automobiles, an air-floated graphite powder, ground extremely fine, with the object of keeping it suspended in oil for an indefinite period, so as to feed, when mixed with oil, through the lubricators without clogging. The graphite, which is a selected product from the company's Mexican mines, is treated by a special and elaborate system of manufacture.

Last week the Berkshire Automobile Company demonstrated that its cars could break a record decisively by clipping an hour from the Pittsfield, Mass.,-New York City record, already held by a Berkshire car. Driver Floyd Knight, accompanied by E. B. Belcher, superintendent of the company, drove from the factory at Pittsfield to New York in a new car in six hours' running time, and on the return trip bettered the running time to 5 hours and 50 minutes, which is one hour better than any time previously made between the two cities, a distance of 169 miles.

The automobile shop of H. E. Frederickson, Omaha, Neb., has made a clutch for the engine on the airship of Charles K Hamilton, of Toledo, who is making daily flights at the street fair in that city. Since the building of his ship Mr. Hamilton has found serious difficulty in the fact that the engine could not be put in motion without starting the propeller. He said he had tried in several cities, but could find no one who would undertake to make a clutch under eight pounds, which he placed as the maximum. The difficulty was in making a light clutch and yet to give sufficient strength to the propeller shaft where it had to be cut. Mr. Frederickson made and fitted a clutch of five and three-quarter pounds, boring holes in the castings to make them lighter. Several successful flights have been made, using the clutch to throw the propeller in motion after the engine had fairly well started. The engine is a two-cylinder, 5-horsepower motorcycle motor. Mr. Frederickson will also make a vibrating coil and a commutator for it.

NEW AGENCIES ESTABLISHED.

A. J. Coburn, one of the veteran tradesmen of Boston, has secured the agency for the Cameron car for New England, with the exception of Maine.

C. R. Cooke, of the Cooke & Stoddard Company, of Washington, D. C., has closed for the Royal Tourist agency for Chicago, which will be handled by the Cooke Motor Car Company. Several locations are being considered, one of which will be decided on in the near future.

The Capital City Auto Company has been organized at Indianapolis and is located at the corner of New York street and Massachusetts avenue, that city. R. J. Irvin is president and F. W. Eisele treasurer. The company is in the market for the Indiana state agency for several cars, especially those of the smaller or runabout type.

A. E. Morrison, who has secured the Boston agency for the Oldsmobile and Stearns, is temporarily located on Massachusetts avenue, near Newbury street. He will take possession of his new salesrooms, now in course of erection at the corner of Massachusetts avenue and Newbury street, as soon as they are completed, and will occupy two floors.

The Reo will be sold from a branch house in Chicago in the future, which has been opened under the name of R. M. Owen & Co. The house will also handle the Premier in Chicago. Temporary headquarters will be secured until December 1, when a new store on Michigan avenue, near Fourteenth street, will be occupied. H. J. Ollier will be the local manager, assisted by Otto Owen.

PERSONAL TRADE MENTION.

John F. McLain, formerly assistant manager of the Pope Manufacturing Company's Boston branch, has been appointed foreign salesman for the company. After completing a tour of the Pope factories he will leave for Europe.

W. S. Austin, of the Austin Automobile Company, Grand Rapids, Mich., arrived in New York on Thursday last after a prolonged tour of the New England states, in a 60-horsepower Austin car, with a party of friends. Mr. Austin remained in New York to witness the Vanderbilt Cup race and left shortly thereafter for Grand Rapids.

W. W. McDonald, who has been with the Electric Vehicle Company at Chicago as salesman the past season, has accepted a position with the Stoddard-Dayton Motor Car Company, Dayton, O., as expert tester, his duties being to visit the various agencies and instruct the selling forces in the handling of the cars.

As announced in THE AUTOMOBILE last week, Emil Grossman has, by mutual and friendly agreement, severed his connection with the Continental Caoutchouc Company, as secretary, general manager and director. Mr. Grossman established the Continental company in America in July, 1903, and has during the past three years built up what is admitted to be one of the largest and most valuable tire businesses in the world. He will devote his entire time in the future to the Motor Car Equipment Company, the National Sales Corporation and the Royal Battery Company, in all of which he occupies the position of president.

RECENT INCORPORATIONS.

Buckeye Auto Top and Trimming Company, Cleveland O.; capital, $15,000.

Howard Motor Works, Yonkers, N. Y.; capital, $25,000. Directors, H. F. Freyert, D. G. Phillips and W. S. Howard.

Texas Automobile Company of Houston, Tex.; capital stock, $10,000. Incorporators, Ivan F. Vick, Vivian Vick and T. S. Vick.

Bernard-Briggs Manufacturing Company, Boston; capital, $250,000. To manufacture automobiles and machinery. President, J. L. Briggs; treasurer, A. H. Bernard.

Enid Motor Car Company, Enid, Okla.; capital, $20,000. Incorporators, C. S. McClelland, C. A. Myers, I. P. Marshall, W. A. McQuilkin.

Autolyte Manufacturing Company, New York; capital, $6,000. Automobile supplies. Incorporators, W. H. Schleicher, T. M. Debevoise, E. S. Paine.

The Jacobson Motor Company, New York; capital, $100,000. To manufacture motors and engines. Incorporators, C. Jacobson, G. F. Sellstrum, J. Jacobson, K. Peterson and J. S. Grover.

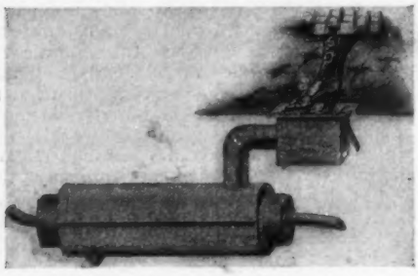
THE GROWING GARAGE LIST

The Hutchison Motor Company has been formed at Hutchison, Kan., by J. J. Gouy and C. C. Veatch to conduct a garage business. A building will be erected for the purpose and equipped with the machinery necessary for first-class repair work. The agency for some good cars will be secured.

A good deal of difference of opinion has arisen among the residents along Riverside Drive, New York, by a proposition to build a garage at One Hundred and Sixty-first street. A company, composed of wealthy men, has been formed and lots have been purchased as a site for the buildings; the garage will be run on the co-operative plan. The Heights Garage and Storage Company was incorporated at Albany, with a capital of $42,000. Contracts for the work have, it is said, already been let and work is to be commenced at an early date. Residents in the near neighborhood complain that the proposed building will shut off their view of the river; automobilists who live in the vicinity are, on the contrary, pleased at the idea of having a fine garage near at hand. Among the incorporators of the company are Charles E. Finley, R. H. Fowler, William Gamble, Wilbert Garrison, William Hills, Arthur L. Smith, John D. Beals and Walter R. Comfort.

INFORMATION FOR BUYERS.

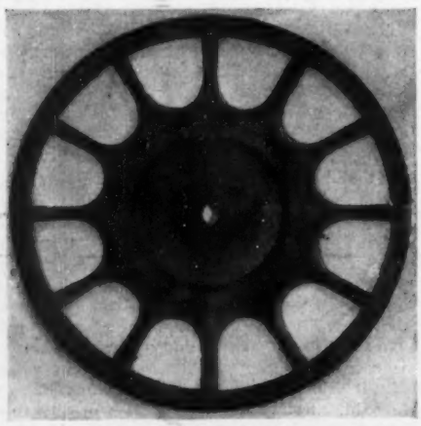
FOOT WARMER.—Now that cold weather is approaching and inclosed cars are becoming more numerous, the question of heating them, so that the passengers will be comfortable, comes to the front. There is plenty of heat in the gasoline car to more than warm it, but the problem is to use it to the best advantage. This problem has been solved by the Walton Automobile Garage, of North State street and Walton



WALTON HOT-AIR FOOT WARMER.

Place, Chicago, Ill., in the foot warmer shown in the accompanying illustration. The part of the apparatus seen by the occupants of the car consists of a little register in the floor just like a house register in miniature, through which warm air rises. The air is heated by being drawn into a jacket surrounding a section of the exhaust pipe and rises to the register. As long as the motor is running there will be plenty of heat, and the flow of the hot air can be regulated by turning the register on or off at will. One of the advantages of this system is that fresh air is brought into the car, assisting materially in the ventilation of the little house—a matter of no small moment.

PNEUMATIC HUB WHEEL.—The idea of the designer of the "Pneumo wheel," C. F. Marohn, 1111 Eighteenth street, Milwaukee, Wis., is to remove the cushioning effect of the pneumatic tire from the rim, where it is exposed to all kinds of hard usage, to the center of the wheel, where it can absorb shocks without being exposed



PNEUMO WHEEL WITH CUSHION HUB.

to danger of puncture or subjected to wear. The illustration shows the appearance of this ingenious wheel. The rim of the wheel is fitted with a broad solid rubber tire to prevent noise and rattling. The manufacturer states that this wheel has been thoroughly tested and is entirely practical for road work.

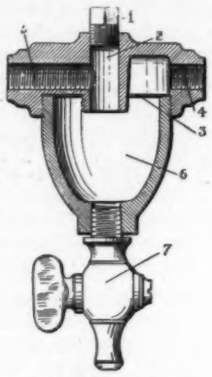
RAMBLER PARTS LIST.—An exceedingly complete price list of the various component parts, down to the smallest bolt, of the different Rambler cars has been issued by Thomas B. Jeffery & Co., of Kenosha, Wis. This list gives the name, number and price of every part of each car, so that the owner of a Rambler who wants to order any particular part can do so without difficulty, and if he does not know just what to call the particular part he wants he can look it up in the illustration sheets and see just what it looks like. The parts are divided into groups, such as the engine group, electrical group, mudguard group, rear axle group, and so on, the grouping making it easy to find any desired part.

TIRE PROTECTOR.—The vulnerability of the pneumatic tire to the sharp, rubber-destroying objects with which the roads are only too frequently decorated has led a number of manufacturers to bring out tire protectors and puncture-resisting devices of various kinds and of various degrees of usefulness. A device that appears to be extremely practical is the Standard tire protector, made by the Standard Tire Pro-

STANDARD TIRE PROTECTOR.

tector Company, of 116-118 South Jefferson street, Peoria, Ill., and illustrated herewith. This protector consists of a band which fits over the tire, covering the tread and two-thirds of the sides, having in its edges cables of interwoven wire and linen. The tire is deflated and the protector slipped in place and the tire again inflated. The air pressure forces the tread of the tire out against the inside of the protector and holds it securely in place, the wire and linen cables preventing any stretching or excessive elasticity. Once applied, the cover is a permanency as long as may be desired, but it can easily be removed by deflating the tire. The protector is made of three layers of exceedingly heavy canvas cut on the bias and made to conform to the shape of the tire. Between the canvas layers is a layer of what the manufacturers call "leather board," made by subjecting leather to a chemical process which hardens it and makes it practically unpuncturable. The whole is vulcanized together, forming an effective protection for the tire.

GASOLINE SEPARATOR.—Water in the gasoline is worse than a nuisance, and so is dirt, as every automobilist knows. It is not possible to avoid getting some of both into the tank occasionally, but means have been devised for preventing its reaching the carbureter and stopping the motor. A device designed for this purpose is the Leavitt gasoline separator, manufactured by the Uncas Specialty Company, of Norwich, Conn. A sectional illustration of the separator is given, showing the simplicity of the little affair. The separator is placed in the gasoline pipe line, the gasoline going



LEAVITT GASOLINE SEPARATOR.

in on the left side and passing out through the outlet on the right, the pipe ends being screwed into the tapped holes. Just below the outlet is a wire gauze strainer, which deflects dirt and sends it to the bottom of the cup; water falls to the bottom of its own weight, and both can be cleared out in a moment by merely opening the little cock at the bottom of the separator. If the arrangement of the piping should be such that the inlet pipe could be more conveniently carried in at the top, this can be done by removing the plug in the top opening and screwing it into the side opening and connecting up the piping to the top. This device is made with pipe connections either 1-8 inch or 1-4 inch, the smaller size being furnished if no size is specified.

ALUMINUM SOLDER.—One of the specialties handled by the well-known firm of Janney, Steinmetz & Co., of Philadelphia, Pa., is Richards' aluminum solder. The great difficulty of soldering aluminum, owing to the instantaneous formation of a film of oxide on a freshly-cleaned aluminum surface which prevents the adherence of ordinary solders, is well known. Richards' aluminum solder contains its own flux, consisting of a small quantity of phosphorus, and this has the property of absorbing oxygen more rapidly than the aluminum itself, and thus preventing the formation of a film of oxide long enough to permit a union between the metal and the fluid solder. The inventor of this solder was awarded the John Scott medal by the Franklin Institute for his production.

NEW SUPPLY CATALOGUE.—The Automobile Buyers' Association, of 98 Chambers street, New York, has issued its 1907 catalogue of automobile supplies and sundries, listing an extensive line of goods. This concern makes a specialty of selling good articles at unusually moderate prices, and this has the effect of making the catalogue more than usually interesting.

A CORRECTION.

In the Weed Chain Tire Grip Company's advertisement that appeared in last week's issue of THE AUTOMOBILE the address was given incorrectly. As is generally known, the office of the Weed company is at 28 Moore street, New York, where all correspondence and other matters relating to their rapidly growing business should be addressed.